MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 13

[Period from 1 to 31 May 2015]

(June 2015)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 11 June 2015

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 13

[Period from 1 to 31 May 2015]

(June 2015)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 11 June 2015

AECOM

MTR Corporation Limited

Consultancy Agreements
No. C11033B

Shatin to Central Link - Hung Hom to Admiralty Section

Monthly EM&A Report No. 13

[Period from 1 to 31 May 2015]

	Name	Signature
Prepared & Checked:	Joanne Tsoi	
Reviewed & Approved:	Josh Lam	

Version: A	Date: 11 June 2015

AECOM Asia Co. Ltd.
8/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 3922 9000 Fax: (852) 3922 9797 www.aecom.com

Table of Contents

List of Tables

List of Appendices

1 INTRODUCTION

1.1 Background

1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as "the Project") is part of the SCL.

1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/B) was issued by Director of Environmental Protection (DEP) on 19 March 2015.

1.2 Project Programme

1.2.1 Six civil construction works contracts of the Project have been awarded since January 2014. The construction of the Project commenced in May 2014 and is expected to complete in 2021[1]. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1126(2)	Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool	July 2014	Kaden Leader JV	Cinotech Consultants Ltd. (Cinotech)
1128	South Ventilation Building to Admiralty Tunnels	November 2014	Dragages Bouygues J.V.	AECOM Asia Co. Ltd.
1129	SCL – Advance Works for NSL	May 2014	Hsin Chong Construction Co. Ltd.	AECOM Asia Co. Ltd.
11227(1)	Advance Works for NSL Cross Harbour Tunnels	August 2014	Concentric-Hong Kong River Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1121	NSL Cross Harbour Tunnels	March 2015	Penta-Ocean – China State JV	Cinotech Consultants Ltd. (Cinotech)
1123	Exhibition Station and Tunnels	June 2015 (Tentative)	Leighton – China State JV	AECOM Asia Co. Ltd.

Note:
(1) Construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed in 15 and 20 December 2014 respectively.
(2) Construction works under Works Contract 1126 was completed on 17 May 2015.

[1] The commissioning date of SCL(HUH-ADM) will very likely be deferred to 2021 to allow flexibility for the topside development of the Exhibition Station, and to cater for the construction works under other infrastructure projects on Hong Kong Island.

1.3 Purpose of the Report

1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the thirteenth EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 May 2015.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1 EM&A Results

2.1.1 The EM&A Report for Works Contracts 1129, 1126, 1128 and 1121 prepared by the respective Contractor's ETs are provided in **Appendices A** to **D** respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.

2.1.2 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in **Table 2.1**.

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1121	NSL Cross Harbour Tunnels	• Marine Piling Works in Hung Hom Landfall; • Advance Dredging Works near Hung Hom Landfall; • Trial Trenching Works in Victoria Harbour; • Demolition/ Removal of Existing Fender Piles; • Site Formation for Shek O Casting Basin; • Construction of Site Office in Shek O; • Construction of Shek O Concrete Batching Plant; and • Construction of Dock Gates for Shek O Casting Basin.
1126	Wan Chai Sports Ground (WCSG)	• All works related to Works Contract 1126 was completed.
	Public Transport Interchange (PTI) Area	• Installation of traffic signal at Hung Hing Road; and • Construction of temporary public toilet.
1128	Area W1 (Reclamation Works Area)	• D-Wall excavation.
	Area W3	• Temporary Traffic Management Scheme (TTMS) & ELS for CHT footbridge; • Trial pit for Causeway/Hung Hing Flyover; and • Demolition of Percival footbridge.
	Area W4a (Canal Road box culvert)	• Excavation of western channel.
	Area W4b (Canal Road flyover)	• Pile load test; and • Excavation and pile cap construction.
	Area W6 (Wan Shing Street)	• TTMS for sheetpile detection along taxi layby.
	Wan Chai Sports Ground (WCSG)	• Continue slurry wall ground replacement; • Continue RC work of store and pump room; and • Continue E&M detailed design & procurement.
	Area W8	• Continue predrilling, trial trench for UU exposure; • Continue pre-treatment of seawall rubble mound; and • A/C pipe replacement work along Convention Avenue.
	Area 14a & 14b	• Pile removal by jacking method; and • Setup site office.
	Lung King Street	• Start pile depth investigation; and • Excavation to expose box culvert.
1129	Area W1	• Nil
	Area W2	• Nil
	Area W3	• Site & Carriageway Reinstatement.

2.1.3 During the reporting month, impact monitoring for air quality, construction noise and water quality were conducted in accordance with the EM&A Manual. Continuous noise monitoring was not required in the reporting period according to the Continuous Noise Monitoring Plan

(CNMP). No exceedances of the Action/Limit Levels of 24-hr TSP, construction noise and water quality parameters due to the Project construction were recorded. Results of air quality, construction noise and water quality monitoring are summarised in **Tables 2.2, 2.3** and **2.4** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Reports (**Appendices A** to **D**).

Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1121[1]					
Works Contract 1126					
AM3	Existing Harbour Road Sports Centre	57.6 – 112.1	169	260	No
Works Contract 1128					
AM2	Wan Chai Sports Ground[2][3]	31.8 – 52.2	160	260	No
AM4	Pedestrian Plaza	38.5 – 95.5	198	260	No
Works Contract 1129[4]					

Note:
(1) The setup of the impact dust monitoring station at Harbourfront Horizon and the impact monitoring is currently carried out under Works Contract 1112. Upon termination of their EM&A programmes, the impact monitoring works would be taken up by Works Contract 1121.
(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
(3) Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out under Works Contract 1128 from April 2015 onwards.
(4) No TSP monitoring is required under Works Contract 1129.

Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected[1]		
Works Contract 1121[2]						
Works Contract 1126						
NM2[3][4]	Harbour Centre	68.9 – 72.0	69.6	< Baseline – 68.3	75	No
Work Contract 1128 and 1129						
NM1	Hoi Kung Court	69.2 – 70.6	71	< Baseline	75	No

Note:
(1) The measured noise levels are corrected against the corresponding baseline noise levels.
(2) No construction noise monitoring is required under Works Contract 1121.
(3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
(4) Impact noise monitoring has been carrying out on 7/F of Habour Centre between 20 August and 15 December 2014, and on 8/F from 19 December 2014 onwards.

Table 2.4 Summary of Marine Water Quality Monitoring Results in the Reporting Period [(1)]

Locations		Parameters		
		Depth-averaged Dissolved Oxygen (mg/L)	Depth-averaged Turbidity (NTU)	Depth-averaged Suspended Solids (mg/L)
Shek O Casting Basin [(2)]				
Victoria Harbour (Wet Season) [(3)]				
21	Mean	5.7	4.4	5.4
	Range	4.4 – 7.1	1.9 – 6.5	3.5 – 6.8
34	Mean	5.6	3.7	5.0
	Range	4.5 – 7.0	1.3 – 7.1	3.3 – 6.5
9	Mean	6.1	2.9	4.7
	Range	4.9 – 6.9	0.1 – 5.3	3.0 – 6.5
Action Level		2.8	11.3	6.9
Limit Level		2.7	17.2	9.1
Exceedance (Yes/No)		No	No	No
A	Mean	5.6	3.2	4.9
	Range	4.0 – 6.9	1.3 – 4.5	3.7 – 5.8
WSD17	Mean	5.4	3.4	5.0
	Range	3.7 – 7.0	1.0 – 4.6	3.5 – 5.8
WSD9	Mean	5.6	3.2	4.9
	Range	3.8 – 7.2	0.6 – 4.5	3.7 – 5.8
Action Level		<2.1	4.7	6.0
Limit Level		<2	6.5	6.0
Exceedance (Yes/No)		No	No	No
C1	Mean	5.7	3.6	4.9
	Range	4.1 – 7.0	1.4 – 4.6	3.2 – 5.8
C2	Mean	5.7	3.5	5.1
	Range	4.6 – 7.0	0.7 – 4.6	3.5 – 5.8

Notes:

(1) Marine water quality monitoring was conducted in the reporting period under Works Contract 1121.

(2) Removal of earth bunds at Shek O Casting Basin under Works Contract 1121 has not yet commenced in the reporting month, and thus no water quality monitoring was conducted during the reporting period.

(3) Dredging / filling works within the Victoria Harbour commenced on 22 April 2015. Water Quality Monitoring at Station 8 and 14 is suspended as these water intakes are not in use.

2.1.4 No environmental complaints, notification of summons and successful prosecutions were received in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

Table 2.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
	Reporting Month	Reporting Month	Reporting Month
1121	0	0	0
1126	0	0	0
1128	0	0	0
1129	0	0	0

2.1.5 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Report, EM&A Manual and EP (EP-436/2012/B). The status of required submissions under the EP as of the reporting period are summarised in **Table 3.1**.

Table 3.1 Summary of EP Submissions Status

EP Condition (EP-436/2012/B)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	19 Dec 2012
Condition 2.3	Notification of Information of Community Liaison Groups	17 Mar 2014
Condition 2.5	Management Organisation of Main Construction Companies	4 Apr 2014
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP) Works Contract 1123: Construction Noise Mitigation Measures Plan (CNMMP)	9 Jun 2014 (1st Submission) 24 Apr 2015 (1st Submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP) Works Contract 1123: Continuous Noise Monitoring Plan (CNMP)	9 Jun 2014 (1st Submission) 24 Apr 2015(1st Submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st Submission) 12 Sept 2012 (2nd Submission) 15 Oct 2012 (approved)
Condition 2.10	Works Contract 11227: Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour Works Contract 1121: Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour	11 Jul 2014 17 Feb 2015 (1st Submission) 2 April 2015 (2nd Submission)
Condition 2.11	Works Contract 11227: Silt Screen Deployment Plan Works Contract 1121: Silt Screen Deployment Plan	11 Jul 2014 13 Feb 2015
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st Submission) 12 Sept 2012 (2nd Submission) 15 Oct 2012 (approved) 3 Jul 2014 (3rd submission)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1st Submission) 15 Feb 2013 (2nd Submission) 3 Dec 2013 (3rd Submission) 21 Aug 2014 (4th Submission) 9 Feb 2015 (5th Submission)
Condition 2.23.1	Works Contract 11227: Silt Curtain Deployment Plan for Shek O Works Contract 1121: Silt Curtain Deployment Plan for Shek O	23 Jul 2014 (1st Submission) 31 Jul 2014 (approved) 4 Feb 2015 (1st Submission) 4 Mar 2015 (2nd Submission) 9 Mar 2015 (approved)
Condition 2.24	Contamination Assessment Plan (CAP) and Contamination Assessment Report (CAR)Remedial Action Plan (RAP) for the above-ground diesel tanks for Wan Chai Swimming Pool	CAP: 25 Sept 2012 (1st Submission) 12 Nov 2012 (2nd Submission) 22 Nov 2012 (approved) CAR:

EP Condition (EP-436/2012/B)	Submission	Submission date
		19 Mar 2013 (1st Submission) 16 Apr 2013 (2nd Submission) 21 May 2013 (3rd Submission) 7 Jun 2013 (approved)
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1st Submission) 5 Feb 2014 (2nd Submission)
	Baseline Water Quality Monitoring Report	23 Sep 2014 (1st Submission) 18 Dec 2014 (2nd Submission)
	Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin	8 Jul 2014 (1st Submission) 11 Aug 2014 (2nd Submission)
Condition 3.4	Monthly EM&A Reports No.1 - 11	Reported in previous Monthly EM&A Reports
	Final EM&A Review Report for Works Contract 11227	12 Feb 2015
	Monthly EM&A Report No.12	14 May 2015

Appendix A

Monthly EM&A Report for May 2015 – SCL Works Contract 1129 Advance Works for NSL

AECOM

Hsin Chong Construction Co. Ltd.

Shatin to Central Link - Hung Hom to Admiralty Section

Works Contract 1129 - Advance Works for NSL

Monthly EM&A Report for May 2015

June 2015

	Name	Signature
Prepared & Checked:	Lemon Lam	
Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0	Date: 5 June 2015

AECOM Asia Co. Ltd.
15/F, Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 3922 9000 Fax: (852) 2317 7609 www.aecom.com

Table of Contents

Page

List of Tables

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Shatin to Central Link Contract 1129 – Advance Works for North South Link (NSL) (hereafter called "the Project") covers part of the construction of the Shatin to Central Link (SCL) which aimed to comprises advance works for NSL – the extension of the existing East Rail Line (EAL) to Hong Kong Island.

The Project covers construction activities at Percival Street Footbridge, Causeway Flyover, Tunnel Approach Rest Garden (TARG) and demolition works at existing abandoned culvert near Wan Shing Street.

The EM&A programme commenced on 2 May 2014.The impact EM&A for the Project includes noise monitoring.

As informed by the Contractor, a part of works area in W2 has been handed over to other SCL contract on 25 and 27 August 2014, and another part of W2 has been handed over to other SCL contract on 25 October 2014. Also, W1 has been handed over to other SCL contract on 23 February 2015.

This report documents the findings of EM&A works conducted in the period between 1 and 31 May 2015. As informed by the Contractor, major activities in the reporting period were:

Area W1
- Nil.

Area W2
- Nil.

Area W3
- Site & Carriageway Reinstatement.

Breaches of Action and Limit Levels for Noise

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:

Area W1
- Nil.

Area W2
- Nil.

Area W3
- Site & Carriageway Reinstatement;
- Re-diversion of DN150 DI Fresh Water Main to Northern Sheet Pile.

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

1 INTRODUCTION

Hsin Chong Construction Co. Ltd (HC) was commissioned by MTR as the Civil Contractor for Works Contract 1129. AECOM Asia Company Limited (AECOM) was appointed by HC as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the thirteen monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 May 2015.

1.2 Report Structure

1.2.1 This monthly EM&A Report is orgainised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) (VEP-433/2014) was applied on 2 April 2014 and the latest EP (EP No. EP-436/2012/B) was issued by the Director of Environmental Protection (DEP) on 19 March 2015.

2.1.3 The construction of the SCL is divided into different civil construction works contracts and the Project covers construction activities at Percival Street Footbridge, Causeway Flyover, TARG and demolition works at existing abandoned culvert near Wan Shing Street under the EP.

2.1.4 As informed by the Contractor, a part of works area in W2 has been handed over to other SCL contract on 25 and 27 August 2014, and another part of W2 has been handed over to other SCL contract on 25 October 2014. Also, W1 has been handed over to other SCL on 23 February 2015.
The works areas and site location of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The major construction activities under Works Contract 1129 include:

(a) Removal of 10 nos. of abandoned steel H-piles, provision of temporary staircase and diversion of pedestrians at Percival Street Footbridge; (Works Area W1)

(b) Underpinning of Pier A5 of Causeway Flyover including installation of 6 nos. 600mm diameter concrete bored piles and construction of pile cap; (Works Area W1)

(c) Site clearance, temporary take-up, storage and handover of feature stone at existing TARG, tree removal and utility diversions. Construction of temporary box culvert (in dry/wet season) without breakthrough of existing culvert at TARG; (Area W2) and

(d) Diversion and temporary support of utilities to facilitate pile extraction works at existing abandoned culvert near Wan Shing Street. Demolition on part of the abandoned culvert and removal of 6 nos. of 18” concrete square driven piles. Construction of minor slip road to facilitate road diversion. (Works Area W3)

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

Area W1
- Nil.

Area W2
- Nil.

Area W3
- Site & Carriageway Reinstatement.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1.**

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. T.C. Lam	3143 9129	3127 6424
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
HC	Contractor	Senior Project Manager	Mr. Nelson Cheng	2602 0918/ 9302 5927	2774 9322
		Assistant Environmental Manager	Mr. Andy Leung	9489 0035	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012/A	30 Apr 2014	-	Superseded by EP-436/2012/B on 19 Mar 2015.	-
EP-436/2012/B	19 Mar 2015	-	Valid	-
Construction Noise Permit				
-	-	-	-	-
Wastewater Discharge License				
WT00020241-2014	4 Nov 2014	30 Apr 2019	Valid	-
Chemical Waste Producer Registration				
WPN5213-134-H3565-01	26 Feb 2014	End of Contract	Valid	For Tunnel Approach Road & Wan Shing Footbridge (Area W3)
Billing Account for Construction Waste Disposal				
7019335	13 Feb 2014	End of Contract	Valid	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
370021	28 Jan 2014	End of Contract	Valid	-

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Noise Monitoring

Monitoring Requirements

3.1.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.1** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.1 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Equipment

3.1.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.2**.

Table 3.2 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Rion (Model No. NL-31 (S/N: 00320528))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

Monitoring Locations

3.1.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manuals for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.3** and shown in **Figure 3.1**.

Table 3.3 Noise Monitoring Stations during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station
NM1	CH2	Hoi Kung Court

Monitoring Methodology

3.1.4 Monitoring Procedure

(a) Façade measurement was made at NM1.

(b) The battery condition was checked to ensure the correct functioning of the meter.

(c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

(d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(e) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.1.5 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.6 The schedule for environmental monitoring in May 2015 is provided in **Appendix F**.

3.2 Landscape and Visual

3.2.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6.**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1.**

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/B)	Monthly EM&A Report for April 2015	14 May 2015

5 MONITORING RESULTS

5.1 Construction Noise Monitoring

5.1.1 The monitoring results for noise are summarized in **Table 5.1** and the monitoring data is provided in **Appendix G**.

Table 5.1 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM1 (*)	<Baseline	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.1.2 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

5.1.3 No Limit Level exceedance of noise was recorded at all monitoring stations in the reporting month.

5.1.4 The event and action plan is annexed in **Appendix H**.

5.1.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.2 Waste Management

5.2.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.2.2 As advised by the Contractor, 36.5m^3 of inert C&D material was generated (0m^3 was disposed as public fills at CWPFBP, 36.5m^3 was disposed as fill bank at TKO137 and 0m^3 was disposed at TKO137 sorting facilities) in the reporting month. 1.9m^3 of general refuse was generated in the reporting month. No metals, no paper/cardboard packaging materials and no plastics were collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix J.**

5.2.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.2.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

5.3 Landscape and Visual

5.3.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 14 and 28 May 2015. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 4 site inspections were carried out on 7, 14, 21 and 28 May 2015. The one held on 14 May 2015 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Water Quality	N/A	N/A	N/A
Waste/ Chemical Management	N/A	N/A	N/A
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

7.1.2 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix I**.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix I**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Two Month

8.1.1 The major construction works in June and July 2015 will be:

Area W1
- Nil.

Area W2
- Nil.

Area W3
- Site & Carriageway Reinstatement; and
- Re-diversion of DN150 DI Fresh Water Main to Northern Sheet Pile.

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

8.3 Monitoring Schedules for the Next Three Months

8.3.1 The tentative schedules for environmental monitoring in June, July and August 2015 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 Noise monitoring was carried out in the reporting month.

9.1.2 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.

9.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

9.1.4 4 nos. of environmental site inspections were carried out in May 2015. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

9.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- No specific observation was identified in the reporting month.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

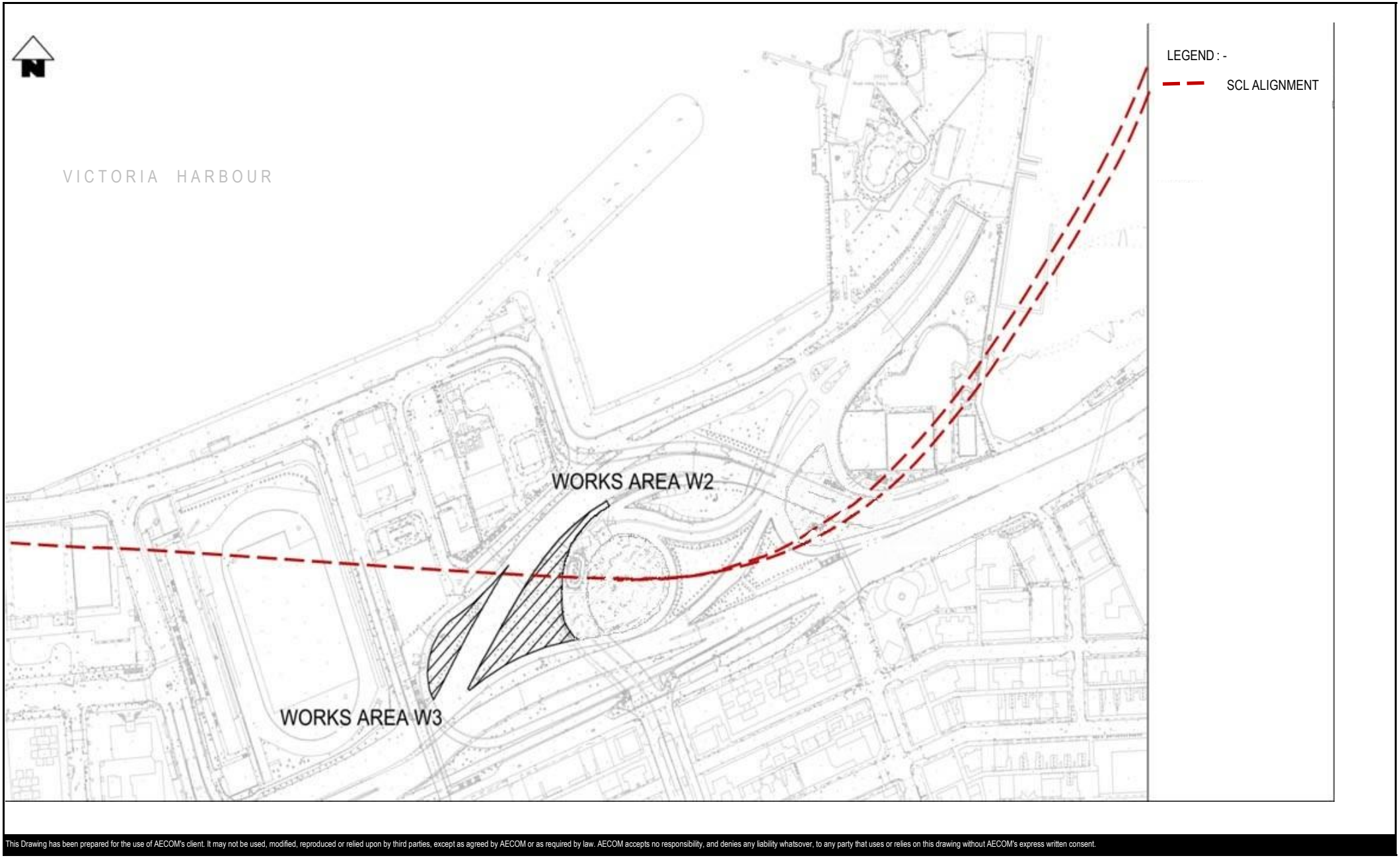
Chemical and Waste Management

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

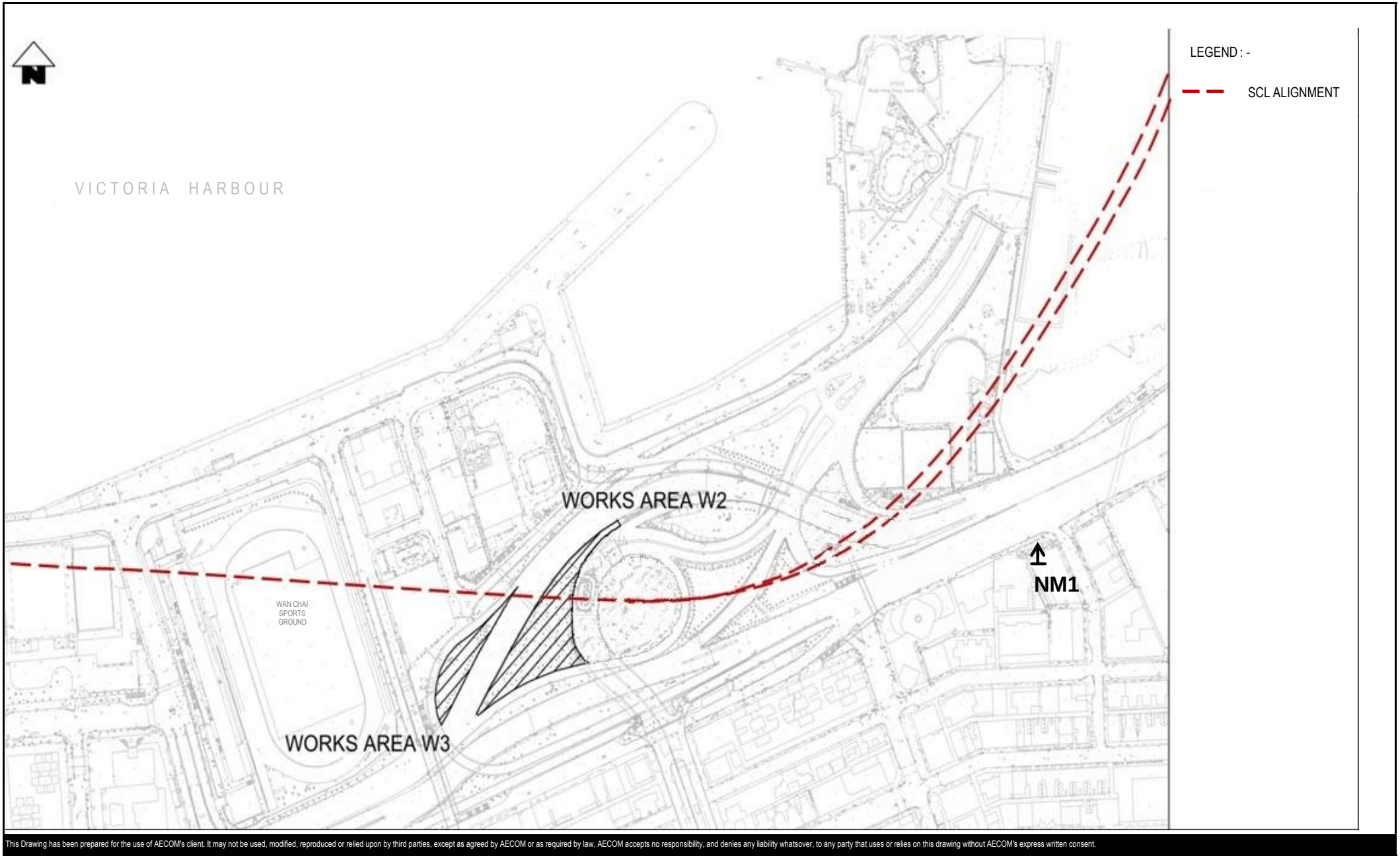
FIGURES



CONTRACT 1129
ADVANCED WORKS FOR NSL

WORKS AREA AND SITE LOCATION OF SCL1129

Project No.: - **Date: April 2015** **Figure 1.1**



CONTRACT 1129
ADVANCED WORKS FOR NSL

LOCATION OF AIR-BORNE NOISE SENSITIVE RECEIVER NM1

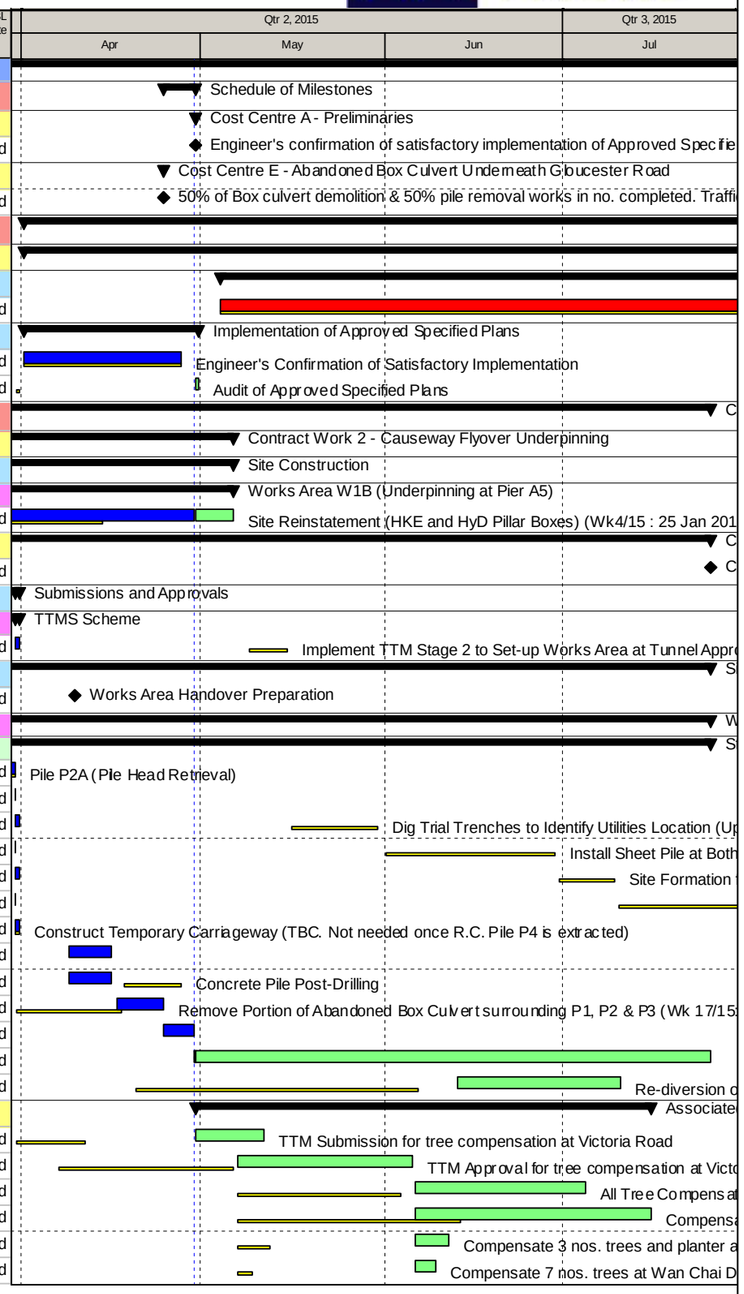
Project No.: - **Date: April 2015** **Figure 3.1**

APPENDIX A

Construction Programme

CONTRACT 1129 - ADVANCE WORK FOR NSL

Activity ID	Activity Name	Duration	BL Project Start	BL Project Finish	Start	Finish	TF	Variance - BL Project Finish Date
MTRC-1129 - Advance Work for NSL (Working Programme) 3MRP Apr 15								
Schedule of Milestones								
Cost Centre A - Preliminaries								
01129.MSA04	Engineer's confirmation of satisfactory implementation of Approved Specified Plans. (Wk13/15)	0.00d		31-Mar-15		30-Apr-15*	-31.00d	-30.00d
Cost Centre E - Abandoned Box Culvert Underneath Gloucester Road								
01129.MSE04	50% of Box culvert demolition & 50% pile removal works in no. completed. Traffic diversion of Route D impl'd (Wk17/15)	0.00d		17-Apr-15		25-Apr-15 A		-7.00d
Preliminaries and General Requirements								
Implementation								
Implementation of Programme Mngt System								
01129.PG1300	Implementation of Programme Management System (2nd)	90.00d	04-May-15	01-Aug-15	04-May-15	01-Aug-15	0.00d	0.00d
Implementation of Approved Specified Plans								
01129.PG1190	Engineer's Confirmation of Satisfactory Implementation	27.00d	01-Apr-15	27-Apr-15	01-Apr-15 A	27-Apr-15 A		0.00d
01129.PG1290	Audit of Approved Specified Plans	1.00d	31-Mar-15	31-Mar-15	30-Apr-15	30-Apr-15	241.00d	-30.00d
Construction Works								
Contract Work 2 - Causeway Flyover Underpinning								
Site Construction								
Works Area W1B (Underpinning at Pier A5)								
01129.CW21150C	Site Reinstatement (HKE and HyD Pillar Boxes) (Wk4/15 : 25 Jan 2015) (covered under O/S Works)	10.00d	12-Feb-15	14-Apr-15	12-Feb-15 A	06-May-15	193.00d	-18.00d
Contract Work 4 - Pile Removal at Tunnel Approach Road								
01129.CD002D10E	Complete all works of abandoned box culvert underneath Gloucester Road (Wk52/15)	0.00d		25-Nov-15		25-Jul-15	155.00d	123.00d
Submissions and Approvals								
TTMS Scheme								
01129.CW41250E	Implement TTM Stage 2 to Set-up Works Area at Tunnel Approach Road (Wk 17/15: 26 Apr 15) (TBC)	6.00d	09-May-15	15-May-15	31-Mar-15 A	31-Mar-15 A		34.00d
Site Construction								
01129.CW41161B	Works Area Handover Preparation	0.00d		26-Aug-15		10-Apr-15 A		115.00d
Works Area W3B								
Stage 2								
01129.CW41200E40	Pile P2A (Pile Head Retrieval)	14.00d	13-Mar-15	31-Mar-15	13-Mar-15 A	31-Mar-15 A		0.00d
01129.CW41274E	Remove 1 no. Concrete Pile (Wk43/15: 25 Oct 14) (TBC. Not needed once R.C. Pile P4 is extracted)	15.00d	26-Aug-15	11-Sep-15	31-Mar-15 A	31-Mar-15 A		134.00d
01129.CW41252E	Dig Trial Trenches to Identify Utilities Location (Upper Portion) (TBC. Not needed once R.C. Pile P4 is extracted)	12.00d	16-May-15	30-May-15	31-Mar-15 A	31-Mar-15 A		46.00d
01129.CW41253E	Install Sheet Pile at Both Sides of Works Area (TBC. Not needed once R.C. Pile P4 is extracted)	24.00d	01-Jun-15	29-Jun-15	31-Mar-15 A	31-Mar-15 A		71.00d
01129.CW41254E	Site Formation for Pile Removal Works (TBC. Not needed once R.C. Pile P4 is extracted)	8.00d	30-Jun-15	09-Jul-15	31-Mar-15 A	31-Mar-15 A		78.00d
01129.CW41264E	Utilities Protection by sheet piles demarcation (TBC. Not needed once R.C. Pile P4 is extracted)	40.00d	10-Jul-15	25-Aug-15	31-Mar-15 A	31-Mar-15 A		119.00d
01129.CW41240E	Construct Temporary Carriageway (TBC. Not needed once R.C. Pile P4 is extracted)	24.00d	31-Mar-15	31-Mar-15	31-Mar-15 A	31-Mar-15 A		0.00d
01129.CW41294E	Pile Removal 1no. Post-drilling	5.00d	26-Sep-15	03-Oct-15	09-Apr-15 A	16-Apr-15 A		141.00d
01129.CW41220E	Concrete Pile Post-Drilling	8.00d	18-Apr-15	27-Apr-15	09-Apr-15 A	16-Apr-15 A		10.00d
01129.CW41210E	Remove Portion of Abandoned Box Culvert surrounding P1, P2 & P3 (Wk 17/15: 26 Apr 15)	12.00d	31-Mar-15	17-Apr-15	17-Apr-15 A	25-Apr-15 A		-6.00d
01129.CW41275E	Remove Remaining Abandoned Box Culvert (Wk43/15 : 25 Oct 14)	12.00d	12-Sep-15	25-Sep-15	25-Apr-15 A	30-Apr-15 A		124.00d
01129.CW41304E	Site & Carriageway Reinstatement (Wk52/15)	44.00d	05-Oct-15	25-Nov-15	30-Apr-15 A	25-Jul-15	127.00d	102.00d
01129.CW41230E	Re-diversion of DN150 DI Fresh Water Main to Northern Sheet Pile	22.00d	20-Apr-15	06-Jun-15	13-Jun-15	10-Jul-15	140.00d	-27.00d
Associated Works								
01129.AW1006F	TTM Submission for tree compensation at Victoria Road	12.00d	31-Mar-15	11-Apr-15	30-Apr-15*	11-May-15	52.00d	-30.00d
01129.AW1020F	TTM Approval for tree compensation at Victoria Road	30.00d	07-Apr-15	06-May-15	07-May-15	05-Jun-15	52.00d	-30.00d
01129.AW1008F10	All Tree Compensation Works in areas contained in Appendix A1 Completed (Wk34/15 : 23 Aug 2015)	23.00d	07-May-15	03-Jun-15	06-Jun-15	04-Jul-15	42.00d	-25.00d
01129.AW1021F	Compensate 63 nos. trees at Victoria Road (Stage 2)	32.00d	07-May-15	13-Jun-15	06-Jun-15	15-Jul-15	42.00d	-25.00d
01129.AW1003F	Compensate 3 nos. trees and planter at Wan Chai District (Hong Kong Tennis Centre) (Stage 2)	5.00d	07-May-15	12-May-15	06-Jun-15	11-Jun-15	163.00d	-25.00d
01129.AW1001F	Compensate 7 nos. trees at Wan Chai District (Tai Wo Street Playground) (Stage 2)	3.00d	07-May-15	09-May-15	06-Jun-15	09-Jun-15	165.00d	-25.00d



Actual Level of Effort | Remaining Work | Summary
Primary Baseline | Critical Remaining Work
Actual Work | Milestone

Project ID: 3MRP(2015-04)

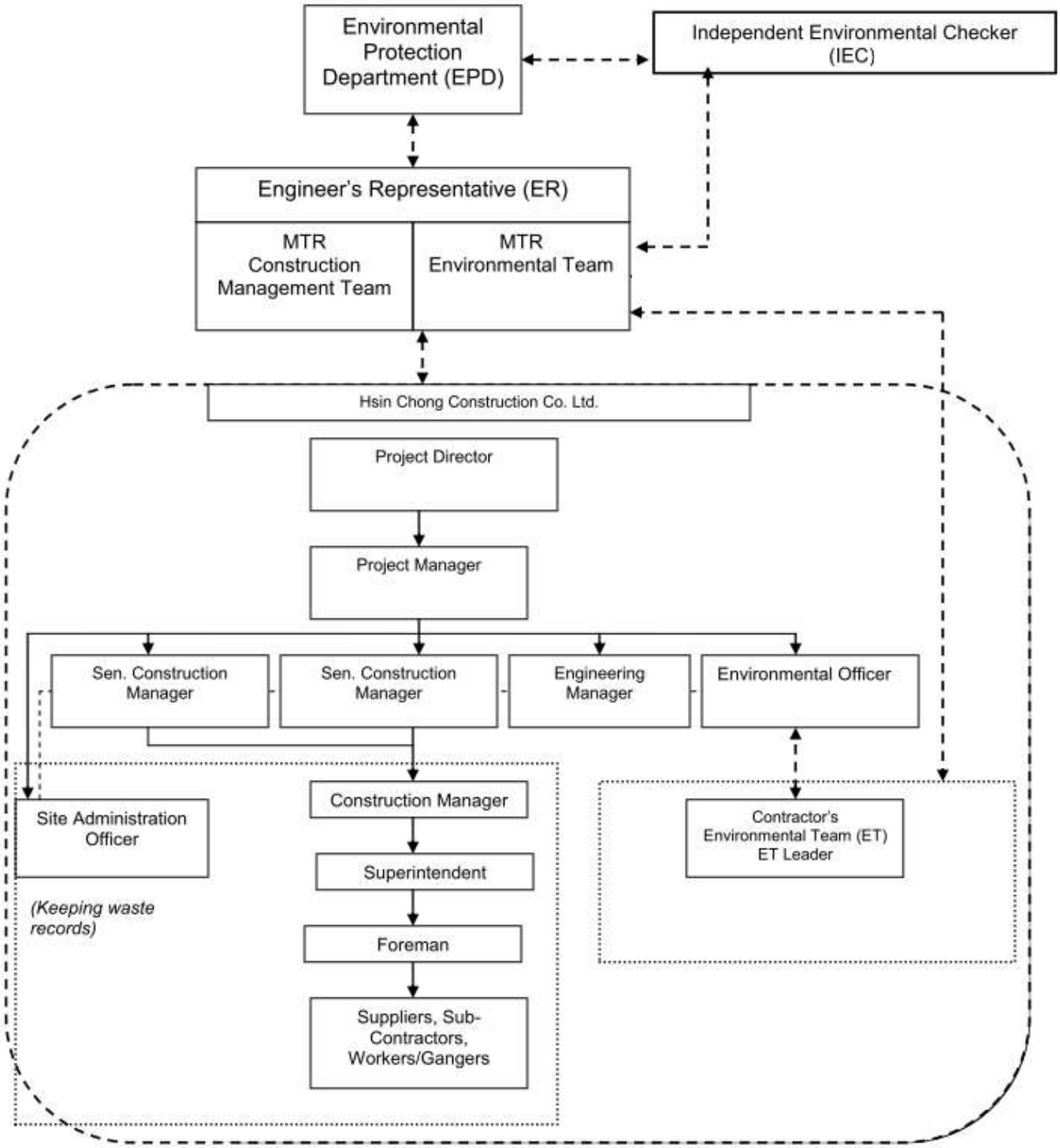
3-MONTH-ROLLING PROGRAMME (APRIL 2015)

Date	Revision	Checked	Approved
30-Apr-15	Rev.-	AB	NC

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Environmental Mitigation Measures Implementation Schedule

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	V
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Air Quality						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V
Construction Dust Impact						
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V V V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise					V V V V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V V V V V
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue	Construction phase	N/A N/A N/A V N/A N/A N/A N/A N/A N/A N/A V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	• Lorry • Wheel loader • Roller vibratory			to north of ADM • South of ADM to Overrun Tunnel		N/A V N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	V N/A V N/A N/A N/A N/A N/A V V N/A N/A N/A N/A
Water Quality Impact						
Construction Phase						
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <u>Boring and Drilling Water</u> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <u>Wheel Washing Water</u> • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. <u>Bentonite Slurries</u> • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be d ewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public					V V V V V V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. <u>Acid Cleaning, Etching and Pickling Wastewater</u> • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. <u>Wastewater from Site Facilities</u> • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.					N/A N/A N/A N/A V
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	V
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	V
S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be	To control site run-off generated from any	Contractor	Any potential contaminated areas to	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	potential contaminated works areas.		be identified from the Stage 2 SI		
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to **Sections 11.189 to 11.192** of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.					
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V V
Waste Management Implications						
Construction Phase						
S12.75	***Good Site Practices and Waste Reduction Measures*** • Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; • Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Separation of chemical wastes for special handling and appropriate treatment.	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S12.76	***Good Site Practices and Waste Reduction Measures (con't)*** • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V V V V V V
S12.77	***Good Site Practices and Waste Reduction Measures (con't)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V
S12.78	***Good Site Practices and Waste Reduction Measures (con't)*** C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	V V V V
S12.80	***Storage, Collection and Transportation of Waste (con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal	To minimize potential adverse environmental	Contractor	Work Sites	Construction Phase	

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: • Remove waste in timely manner • Waste collectors shall only collect wastes prescribed by their permits • Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Waste shall be disposed of at licensed waste disposal facilities • Maintain records of quantities of waste generated, recycled and disposed	impacts arising from waste collection and disposal				V V V V V V
S12.81	***Storage, Collection and Transportation of Waste (con't)*** • Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	***Sorting of C&D Materials*** • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. • Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V V
S12.88	***Sediments*** • The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance.	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A
S12.89	***Sediments (con't)*** • The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.					
S12.91 – 12.94	***Sediments (con't)*** • Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). • In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	***Sediments (con't)*** • A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.					
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	V V V V
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V V V
S12.98	***Chemical Waste Storage Area*** • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated.	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V V V V V V V
S12.99	***Chemical Waste*** • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S12.100	***Collection and Disposal of Chemical Waste*** ***A trip-ticket system shall be operated in accordance with the Waste Disposal*** *(Chemical Waste) (General) Regulation* to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	V
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.102	***General Refuse (con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	V
S12.103	***General Refuse (con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Action and Limit Levels for Construction Noise
(0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1	Hoi Kung Court	When one documented complaint is received	75 dB(A)

APPENDIX E

Calibration Certificates of Equipments

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Rion Co., Ltd.	,	Rion Co., Ltd.
Type/Model No.:	NL-31	,	UC-53A
Serial/Equipment No.:	00320528 / N.007.03A	,	90565
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	06-Nov-2014

Date of test: 07-Nov-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	15-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	65 ± 10 %
Air pressure:	1010 ± 10 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 08-Nov-2014 **Company Chop:** 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING COMPANY LTD.

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-01 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	N/A	N/A	
	Repeated at frequency of 100 Hz	N/A	N/A	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 07-Nov-2014

Checked by: Lam Tze Wai **Date:** 08-Nov-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 14CA1106 04-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10307223 / N.004.08
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	06-Nov-2014

Date of test: 07-Nov-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	13-May-2015	SCL
Preamplifier	B&K 2673	2239857	10-Apr-2015	CEPREI
Measuring amplifier	B&K 2610	2346941	08-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI
Digital multi-meter	34401A	US36087050	17-Dec-2014	CEPREI
Audio analyzer	8903B	GB41300350	07-Apr-2015	CEPREI
Universal counter	53132A	MY40003662	11-Apr-2015	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	65 ± 10 %
Air pressure:	1010 ± 10 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 08-Nov-2014 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 14CA1106 04-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.02	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 988.9 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.3 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 07-Nov-2014

Checked by: Lam Tze Wai **Date:** 08-Nov-2014

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link Contract 1129 - Advance Works for NSL
Impact Environmental Monitoring Schedule for May 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-May	2-May
3-May	4-May	5-May	6-May	7-May	8-May	9-May
				Noise (NM1)		
10-May	11-May	12-May	13-May	14-May	15-May	16-May
			Noise (NM1)			
17-May	18-May	19-May	20-May	21-May	22-May	23-May
		Noise (NM1)				
24-May	25-May	26-May	27-May	28-May	29-May	30-May
		Noise (NM1)				
31-May						

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station
NM1 Hoi Kung Court

Monitoring Frequency
Once per week

Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for June 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun
					Noise (NM1)	
7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
				Noise (NM1)		
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
			Noise (NM1)			
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
		Noise (NM1)				
28-Jun	29-Jun	30-Jun				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station
NM1 Hoi Kung Court

Monitoring Frequency
Once per week

Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for July 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
					Noise (NM1)	
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
				Noise (NM1)		
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
			Noise (NM1)			
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
		Noise (NM1)				
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
	Noise (NM1)					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station
NM1 Hoi Kung Court

Monitoring Frequency
Once per week

Shatin to Central Link Contract 1129 - Advance Works for NSL
Tentative Impact Environmental Monitoring Schedule for August 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
					Noise (NM1)	
9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
				Noise (NM1)		
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
			Noise (NM1)			
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
		Noise (NM1)				
30-Aug						

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Noise Monitoring Station
NM1 Hoi Kung Court

Monitoring Frequency
Once per week

APPENDIX G

Noise Monitoring Results and their Graphical Presentations

Appendix G - Impact Daytime Construction Noise Monitoring Results

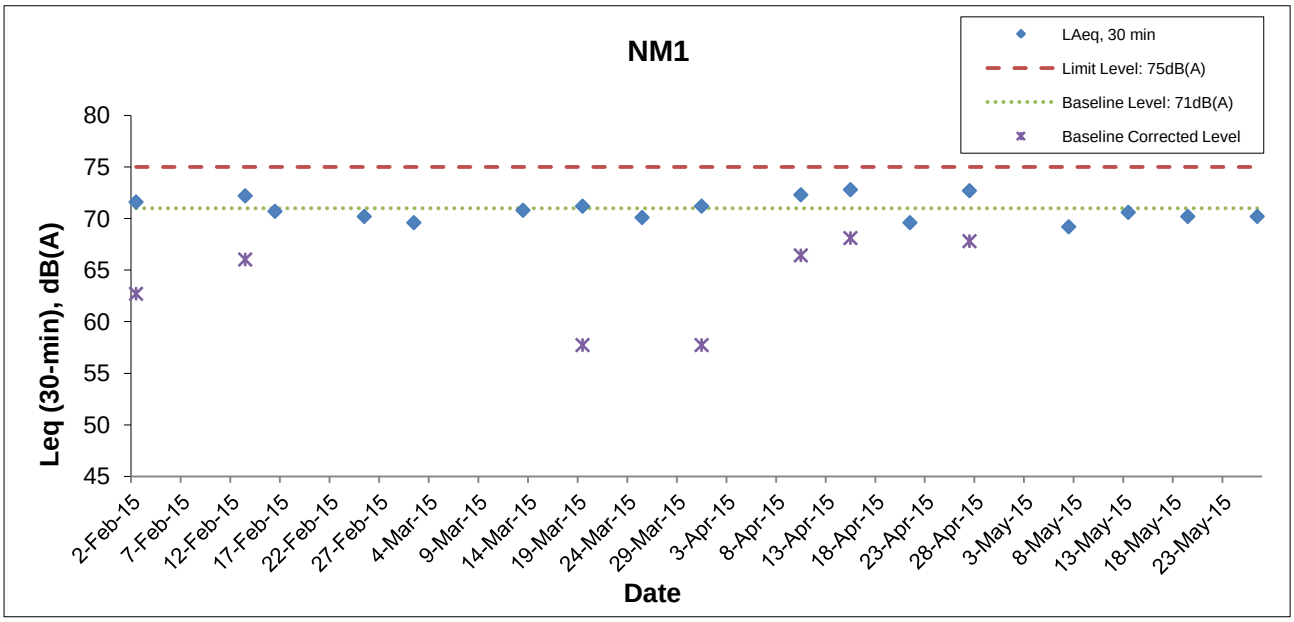
Daytime Noise Monitoring Results at Station NM1 - Hoi Kung Court, Rooftop-20/F

Date	Weather Condition	Noise Level for 30-min, dB(A)*				Baseline Corrected Level, dB(A) #	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
7-May-15	Fine	15:30	66.4	73.0	69.2	<Baseline Level	71	75	N
13-May-15	Fine	14:19	69.4	72.2	70.6	<Baseline Level	71	75	N
19-May-15	Rainy	13:10	68.4	74.2	70.2	<Baseline Level	71	75	N
26-May-15	Cloudy	14:50	68.6	72.0	70.2	<Baseline Level	71	75	N

Remark:

* Façade measurement.

-The measured Leq is corrected against the corresponding Baseline Level.



Shatin Central Link
Contract No. 1129
Advance Works for NSL

Graphical Presentation of Impact Daytime Construction Noise Monitoring Results

Date: June 2015

Appendix G

APPENDIX H

Event Action Plan

Appendix H Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX I

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix I

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX J

Waste Flow Table

SCL Contract 1129 Advance Works For NSL

updated to 31 May2015

Monthly Summary C&D Material Flow Table for 2015

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m^3)					Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m^3)					Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m^3)	Sediment (m^3)
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	^Other Site	**Total (m^3)**	Total	Total		Total	Total	Total
2015/01 (Actual)	*0.00*	*40.00*	*0.00*	*0.00*	*40.00*	0.00	0.00	0.00	0.00	16.90	0.00
2015/02 (Actual)	*0.00*	*44.50*	*4.50*	*0.00*	*49.00*	0.00	0.00	0.00	0.00	16.70	0.00
2015/03 (Actual)	*0.00*	*64.00*	*0.00*	*0.00*	*64.00*	0.00	0.00	0.00	0.00	1.30	0.00
2015/04 (Actual)	*0.00*	*81.50*	*3.00*	*0.00*	*84.50*	0.00	0.00	0.00	0.00	2.90	0.00
2015/05 (Actual)	*0.00*	*36.50*	*0.00*	*0.00*	*36.50*	0.00	0.00	0.00	0.00	1.90	0.00
2015/06 (Actual)											
Sub-total	**0.00**	***266.50***	***7.50***	***0.00***	**274.00**	**0.00**	**0.00**	**0.00**	**0.00**	**39.70**	**0.00**
2015/07 (Actual)											
2015/08 (Actual)											
2015/09 (Actual)											
2015/10 (Actual)											
2015/11 (Actual)											
2015/12 (Actual)											
Sub-total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total					**274.00**	**0.00**	**0.00**	**0.00**	**0.00**	**39.70**	**0.00**

Remark: ***Assume the density is 2 tonnes per cubic metre**

^Required to be approved by EPD and MTR

1 CWPFBP Chai Wan Public Fill Barging Point

2 TKO137FB Fill Bank at Tseung Kwan O Area 137

3 TKO137SF Sorting Facilities at Tseung Kwan O Area 137

Appendix B

Monthly EM&A Report for May 2015 – SCL Works Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No.11

[Period from 1 to 31 May 2015]

Works Contract 1126 – Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

(June 2015)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th June 2015

Kaden – Leader Joint Venture

Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Monthly Environmental Monitoring and Audit Report for May 2015

(Version 2.0)

Certified By

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LTD
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

+TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 11th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1126 – Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**. This report documents the findings of EM&A Works conducted from 1 to 31 May 2015.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

At Wan Chai Sports Ground (WCSG)

All works related to Works Contract 1126 was completed.

At Public Transport Interchange (PTI) Area

- Installation of traffic signal at Hung Hing Road; and
- Construction of temporary public toilet.

3. The construction works for Contract 1126 was completed on 17 May 2015, noise and dust monitoring was carried out until 31 May 2015 and would be taken up by SCL Works Contract 1123 from June 2015 onwards.

Environmental Monitoring and Audit Progress

4. A summary of the monitoring activities in this reporting period is listed below:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

Noise Monitoring Station ID

- NM2(1)(2)(3) (Harbour Centre) — 4 times

- Construction Dust (24-hour TSP) Monitoring(4)

Dust Monitoring Station ID

- AM3(1) (Existing Harbour Road Sports Centre) — 5 times

Remarks:
(1) Station ID as identified in approved EM&A Manual for SCL(HUH-ADM).
(2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.
(4) Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13 May 2015. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 6 and 13 May 2015. The representative of the IEC joined the site inspection on 13 May 2015. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

8. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.

9. No non-compliance event was recorded during the reporting period.

10. No Project related environmental complaint and notification of summons/successful prosecutions were received in this reporting period.

Reporting Changes

11. N/A

Future Key Issues

12. The construction works for Contract 1126 was completed on 17 May 2015.

13. Key environmental impacts to be considered in the coming month include:

- N/A

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Kaden – Leader Joint Venture (KLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 11th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 May 2015. The major construction works for Contract 1126 commenced on 9 July 2014 and completed on 17 May 2015, noise and dust monitoring was carried out until 31 May 2015 and would be taken up by SCL Works Contract 1123 from June 2015 onwards.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures -**summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/B) was issued by Director of Environmental Protection (DEP) on 19 March 2015.

2.3 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1126 comprises of the Permanent Works and the Temporary Works for the re-provisioning of Harbour Road Sports Centre (HRSC) and Wan Chai Swimming Pool (WCSP). The major construction works for Contract 1126 commenced on 9 July 2014 and completed on 17 May 2015.

General Site Description

2.4 The major works of this Project that was classified as Designated Project under the EIAO include the demolition of grandstand superstructure and water pump room of WCSG, and the temporary works for the future Public Transport Interchange (PTI) Area. The PTI area has been obtained in phases. The alignment and works area for the Works Contract 1126 are shown in **Figure 1**.

Construction Programme and Activities

2.5 A summary of the major construction activities undertaken in this reporting period is shown as follows. The construction programme is presented in **Appendix A**.

At Wan Chai Sports Ground (WCSG)

All works related to Works Contract 1126 was completed.

At Public Transport Interchange (PTI) Area

- Installation of traffic signal at Hung Hing Road; and
- Construction of temporary public toilet.

Project Organisation

2.6 The project organizational chart and contact details are shown in **Figure 4.**

Status of Environmental Licences, Notification and Permits

2.7 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-436/2012/B	19/03/2015	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref no.: 380674	17/10/2014	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.7019324	10/02/2014	N/A	Valid
Registration of Chemical Waste Producer			
5213-135-K3131-01(2)	10/11/2014	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00020565-2014(2)	16/12/2014	31/12/2019	Valid
Construction Noise Permit (CNP)			
GW-RS0152-15(3)	23/02/2015	22/08/2015	Valid
GW-RS0342-15(4)	02/04/2015	26/05/2015	Valid

Note:
(1) For the site area in WCSG
(2) For the site area in PTI Area
(3) For construction works in PTI Area.
(4) For construction works at the Junction of Hung Hing Road and Marsh Road.

Summary of EM&A Requirements

2.8 The EM&A programme under Works Contract 1126 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.10 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to the original baseline monitoring location was rejected, alternative location was proposed. The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NM2 (1)	Harbour Centre (8/F) (2) (3)	Façade

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

Monitoring Parameter and Frequency

3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period is shown in **Appendix D**.

3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (one set of 30-minute measurement) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 30 minutes (one set of 30-minute measurement of a $L_{eq,30}$

$_{min}$,reading)

- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, compile with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in **Appendix C**.

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 14303)
Calibrator	SV30A (Serial no.: 24791)

Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

Action & Limit Level for Construction Noise Monitoring

3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I.**

Compliance Checking for Impact Monitoring

3.8 The Baseline noise monitoring was conducted between 1 and 14 September 2014 at Harbour Centre. The Baseline noise monitoring results (L_{eq}(30min.) dB(A)) during the period without construction works on normal weekdays ranged from 67.1dB(A) to 73.0dB(A). Result of the monitoring (i.e. 69.6dB(A)) was used for correcting the measured noise level during the construction stage of the Project for normal weekdays by this formula:

Measured L_{eq} at the Harbour Centre – Baseline Noise Level (69.6 dB)

= Construction Noise Level at the Harbour Centre

Continuous Noise Monitoring

3.9 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared submitted under EP Condition 2.8 and Condition 2.7 respectively, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria is anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (HUH-ADM) under Works Contract 1126.

Regular Construction Dust Monitoring

3.10 The proposed dust monitoring station for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed location has been agreed with the ER, EPD and IEC.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location(2)	Description
AM3(1)	Existing Harbour Road Sports Centre

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Dust monitoring on AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards.

Monitoring Parameter and Frequency

3.11 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at two monitoring locations was conducted as per the schedule presented in **Appendix D**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring(1)	Throughout the construction period	24-hour TSP	Once per 6 days

Note:
(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

Monitoring Equipment

3.12 **Table 3.5** summarizes the equipment used for the dust monitoring.

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	GMWS Model no. GS-2310-105 Serial no.: 5280	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 2896	1

Instrumentation

3.13 High Volume Sampler (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

HVS Installation

3.14 The following guidelines were adopted during the installation of HVS:

- A horizontal platform with appropriate support to secure the samplers against gusty wind should be provided;
- Two samplers should not be placed less than 2m apart;
- The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- A minimum of 2m separation from walls, parapets and penthouses is required for rooftops samplers;
- A minimum of 2m separation from any supporting structure, measures horizontally is required;
- No furnace or incinerator flue is located nearby the samplers;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20m from the dripline;
- Any wire fence and gate to protect the sampler, should not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Filters Preparation

3.15 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.

3.16 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

3.17 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

3.18 Operating/analytical procedures for the TSP monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
- The power supply was checked to ensure the sampler worked properly.
- The filter holding frame and the area surrounding the filter were cleaned.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- A new flow rate record chart was set into the flow recorder.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
- The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.19 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix C**.
- The HVS calibration orifice will be calibrated annually.

Action and Limit Levels for Dust Monitoring

3.20 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix I.**

Landscape and Visual

3.21 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (April 2015)	14 May 2015

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1126. No exceedance of the limit level was recorded at designated monitoring stations.

5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.

5.3 The noise monitoring results together with their graphical presentations are presented in **Appendix F** and a summary of the noise monitoring results in this reporting month is given in **Table 5.1**.

Table 5.1 Summary Table of Noise Monitoring Results during the reporting month

Parameter (1)	Location	Range, dB(A), $L_{eq\ (30\ mins)}$ (2)	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
Noise (NM2)	Harbour Centre (3)	< Baseline – 68.3	75

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) The Range presented in the above table was baseline corrected noise level.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.

5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

5.5 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station during normal weekdays of the reporting period by ET of SCL Works Contract 1126. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results during the reporting month

Parameter	**Minimum µg/m³**	**Maximum µg/m³**	**Average µg/m³**	**Action Level, µg/m³**	**Limit Level, µg/m³**
24-hr TSP (AM3(1))	57.6	112.1	86.1	169	260

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards. The monitoring results with their graphical presentations are presented in Appendix G of SCL 1128 monthly EM&A Report.

5.6 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

5.7 Wind monitoring data were obtained from Star Ferry Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.

5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. Details of waste management data is presented in **Appendix K**. 0 m^3 of inert C&D material was re-used on-site and by other projects.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
May 2015	*151 m^3*	*56 m^3*	*0 kg*	*0 kg*	*0 kg*	*0 kg*

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

Landscape and Visual

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13 May 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.

6.2 Site audits were conducted on 6 and 13 May 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 13 May 2015. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.

6.4 During site inspections in the reporting month, no non-conformance was identified. No observations and recommendations were made during the audit sessions.

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

7.1 No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

8.1 The construction works for Contract 1126 was completed on 17 May 2015. No construction activity will be conducted in the coming month.

Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- N/A

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 May 2015 in accordance with EM&A Manual and the requirement under EP.

9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.

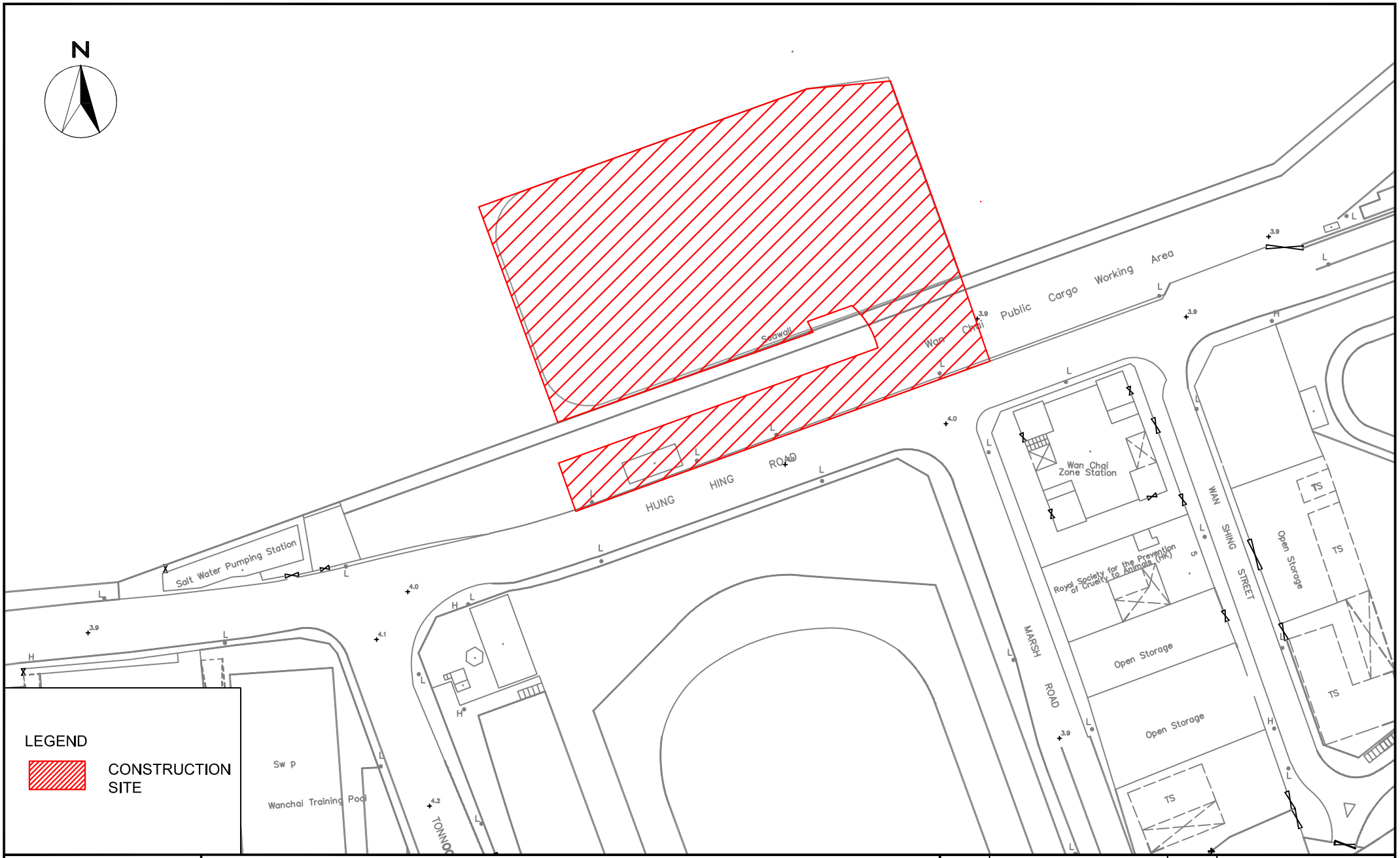
9.3 2 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 1 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.

9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.

Recommendations

9.5 According to the environmental audit performed in the reporting month, no observations and recommendations were made.

FIGURES

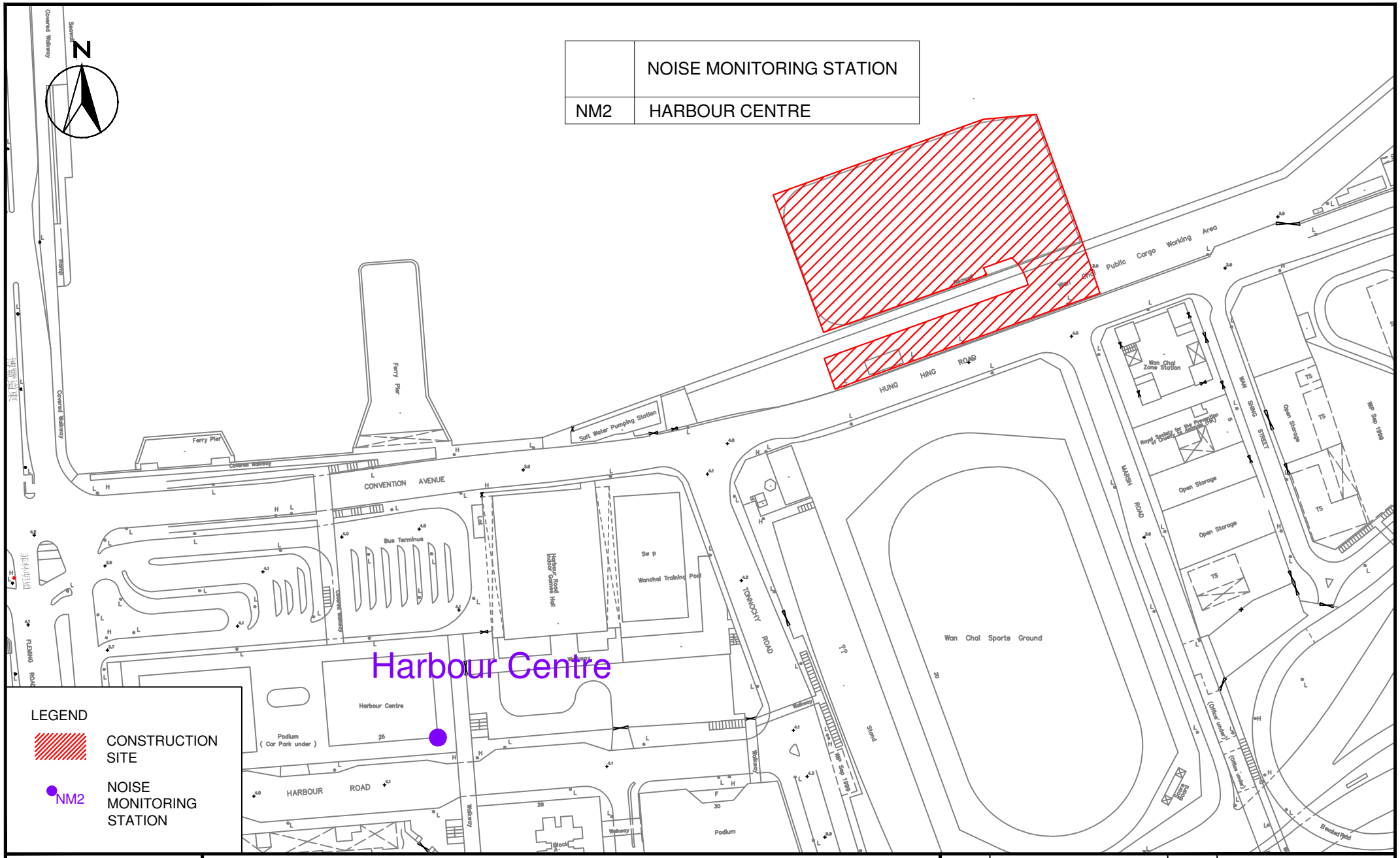


CINOTECH
Cinotech Consultants Limited

MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

SITE LAYOUT PLAN

SCALE	1:2000 @ A4	DATE	APR 2015
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO. 1	REV -

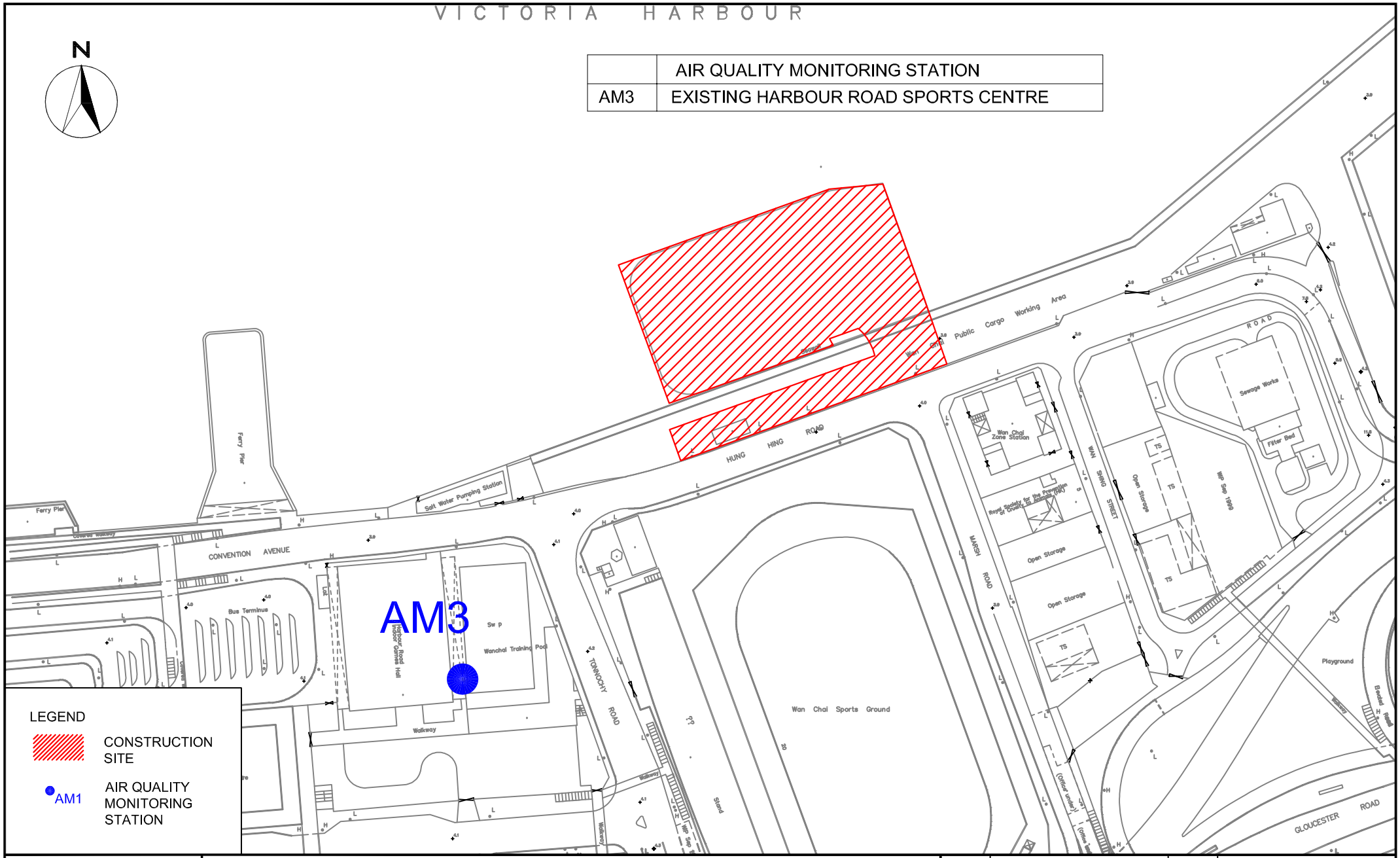


CINOTECH
Cinotech Consultants Limited

MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

LOCATION OF NOISE MONITORING STATION

SCALE	1:5000 @ A4	DATE	APR 2015
CHECK	JF	DRAWN	KC
JOB No.	MA14009	FIGURE NO. 2	REV -

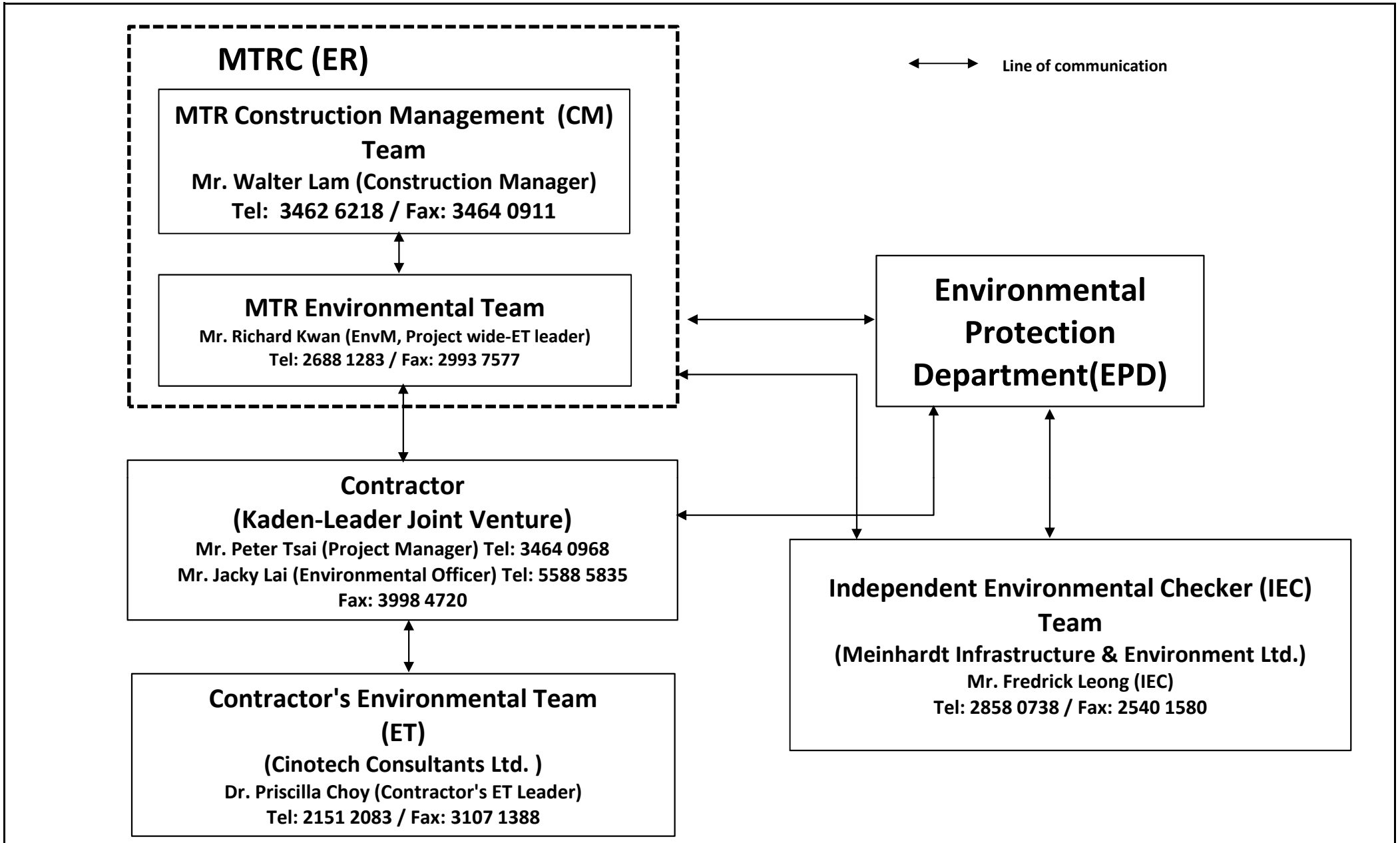


CINOTECH
Cinotech Consultants Limited

MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:5000 @ A4	DATE	MAY 2015
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO.	3
		REV	-

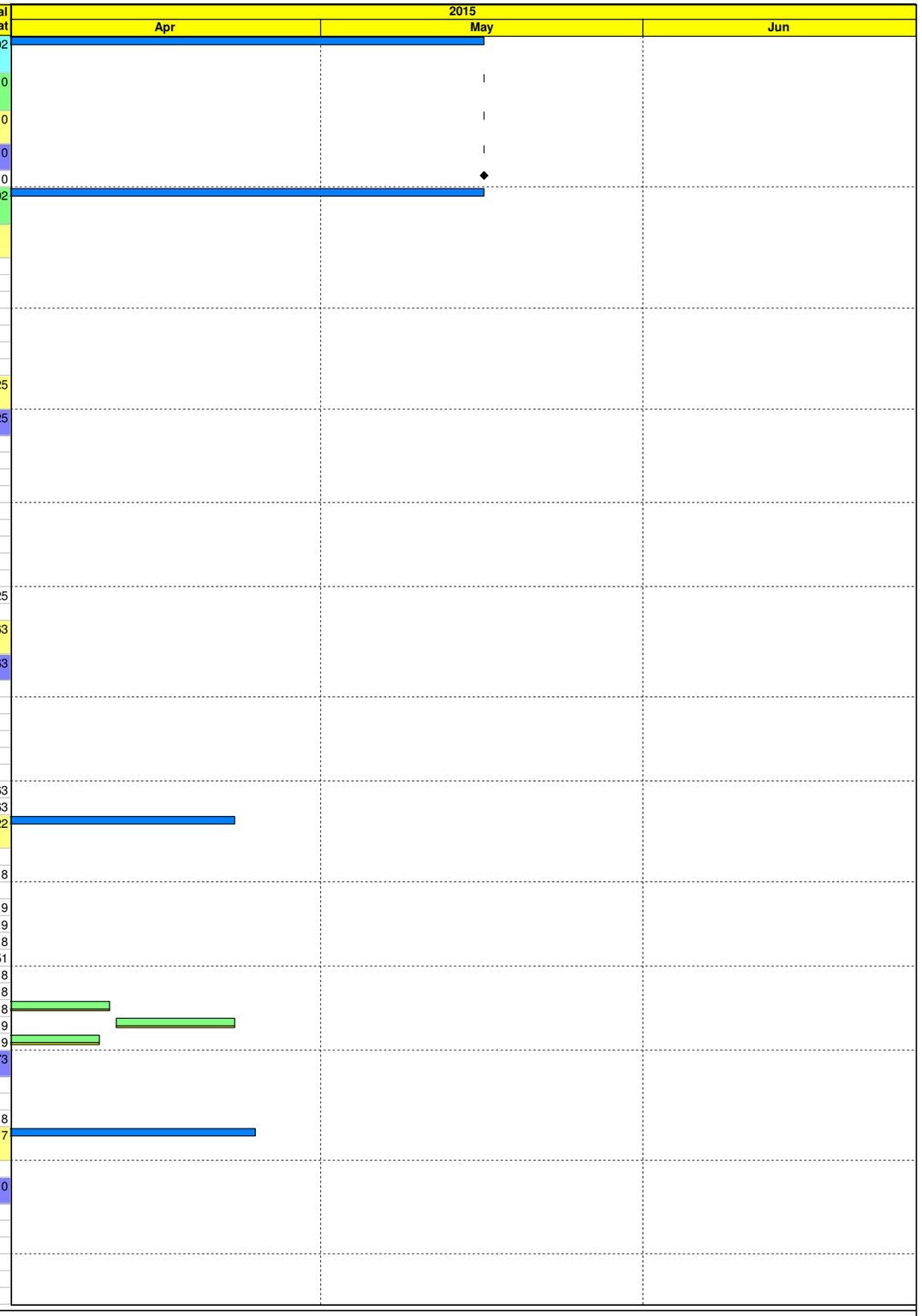


Title	Scale	Proposa
SCL Contract 1126 The Shatin to Central Link - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Project Organisation for Environmental Works	N.T.S	No. MA14009
	Date Jul-14	Figure 4

CINOTECH

APPENDIX A
CONSTRCUTION PROGRAMME

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
SCL1126 - Reprovisioning of HRSC & WCSP (20 Jan 2014) _ Pro		150	26-Aug-14 A	16-May-15	602
Contractual Dates and Project Key Dates		0	16-May-15	16-May-15	0
IPS Milestone Dates		0	16-May-15	16-May-15	0
Cost Centre H - Temporary PTI Facilities at Wan Chai North (Option1)		0	16-May-15	16-May-15	0
01126.MS	H4 - Complete all orks within Cost Centre H; Complete trial runs & Ready for handover to TD (Wk. 50/14, 15-Mar-15)	0		16-May-15*	0
Cost Centre H - Temporary Public Transport Interchange Faciliti		150	26-Aug-14 A	16-May-15	602
Site Procession		57	06-Oct-14 A	15-Jan-15 A	
A14400	Site procession for Area 1	1	06-Oct-14 A	06-Oct-14 A	
A14401	Site procession for Area 2	1	15-Oct-14 A	15-Oct-14 A	
A14402	Site procession for Area 3	1	31-Oct-14 A	31-Oct-14 A	
A14403	Site procession for remaining Area (portion of Area 2 & 3)	1	15-Jan-15 A	15-Jan-15 A	
A14410	UU detection and instrumentation installation	24	06-Oct-14 A	03-Nov-14 A	
A14420	Setting out	24	06-Oct-14 A	31-Oct-14 A	
A14425	Statutory approval letter (DSD, WSD, FSD & ICC)	1	20-Nov-14 A	15-Dec-14 A	
Area 1		68	08-Oct-14 A	26-Jan-15	25
Petrol interception		68	08-Oct-14 A	26-Jan-15	25
A14770	Excavation	6	08-Oct-14 A	15-Oct-14 A	
A14780	Blinding layer	1	16-Oct-14 A	16-Oct-14 A	
A14790	Rebar fixing for bottom slab	6	20-Oct-14 A	31-Oct-14 A	
A14800	Formwork erection for bottom slab	6	01-Nov-14 A	08-Nov-14 A	
A14810	Concreting for bottom slab	1	10-Nov-14 A	10-Nov-14 A	
A14820	Rebar fixing for wall and slab	6	11-Nov-14 A	15-Nov-14 A	
A14830	Formwork erection for wall and slab	6	17-Nov-14 A	22-Nov-14 A	
A14840	Cast in drainage & steel bar	4	24-Nov-14 A	27-Nov-14 A	
A14850	Concreting for wall and slab	1	09-Dec-14 A	09-Dec-14 A	
A14860	Applying finishes	6	20-Jan-15	26-Jan-15	25
A14870	Access ladder installation	6	09-Dec-14 A	09-Dec-14 A	
Area 2		30	24-Nov-14 A	26-Feb-15	63
Store Room		30	24-Nov-14 A	26-Feb-15	63
A14880	Excavation of footing	6	24-Nov-14 A	28-Nov-14 A	
A14890	Blinding layer	2	29-Nov-14 A	29-Nov-14 A	
A14900	Rebar fixing for footing	6	01-Dec-14 A	06-Dec-14 A	
A14910	Formwork erection for footing	6	08-Dec-14 A	16-Dec-14 A	
A14920	Cast in base	6	12-Dec-14 A	16-Dec-14 A	
A14930	Concreting for footing	1	17-Dec-14 A	17-Dec-14 A	
A14940	Structural steel installation	18	20-Jan-15	09-Feb-15	63
A14950	Profiled sheet installation	12	10-Feb-15	26-Feb-15	63
Facilities at Area 1 & 2		130	09-Oct-14 A	22-Apr-15	622
A14960	Excavation	36	09-Oct-14 A	29-Dec-14 A	
A14970	Manhole construction & underground utilities connection	50	10-Nov-14 A	31-Jan-15	8
A14975	Construction of hoarding footing	18	05-Nov-14 A	27-Dec-14 A	
A14980	Construction of ducting for street lighting	36	08-Dec-14 A	12-Feb-15	19
A14990	Construction of footing for bus shelter and signage post	28	16-Nov-14 A	07-Feb-15	19
A15000	Construction of concrete pavement, tactile and kerb	18	16-Feb-15	11-Mar-15	8
A15010	Roadside gully	32	17-Nov-14 A	28-Feb-15	51
A15020	Erection of bus shelter	24	25-Feb-15	24-Mar-15	8
A15030	Erection of signage post	18	04-Mar-15	24-Mar-15	8
A15035	Signage installation	12	25-Mar-15	10-Apr-15	8
A15040	Road marking	10	11-Apr-15	22-Apr-15	19
A15050	Construction of street lighting by HyD Lighting Division	42	13-Feb-15	09-Apr-15	19
Additional Works		79	28-Oct-14 A	14-Feb-15	673
A15560	GCO Probing and trial pits	12	28-Oct-14 A	06-Nov-14 A	
A15570	Boreholes and extensometer installation	18	21-Nov-14 A	06-Dec-14 A	
A15580	CBR Test	12	02-Feb-15	14-Feb-15	8
Temporary Toilet		91	24-Nov-14 A	24-Apr-15	17
A15530	Temporary toilet design confirmation	1	02-Dec-14 A	02-Dec-14 A	
Footing & Superstructure		26	24-Nov-14 A	31-Jan-15	0
A14430	Excavation of footing	5	24-Nov-14 A	28-Nov-14 A	
A14440	Blinding layer	1	29-Nov-14 A	29-Nov-14 A	
A14450	Rebar fixing for footing	3	01-Dec-14 A	10-Dec-14 A	
A14460	Formwork erection for footing	3	11-Dec-14 A	18-Jan-15 A	
A14470	Concreting of footing	1	19-Dec-14 A	19-Dec-14 A	
A14480	Backfilling and apply polyethlene sheet	3	22-Dec-14 A	24-Dec-14 A	

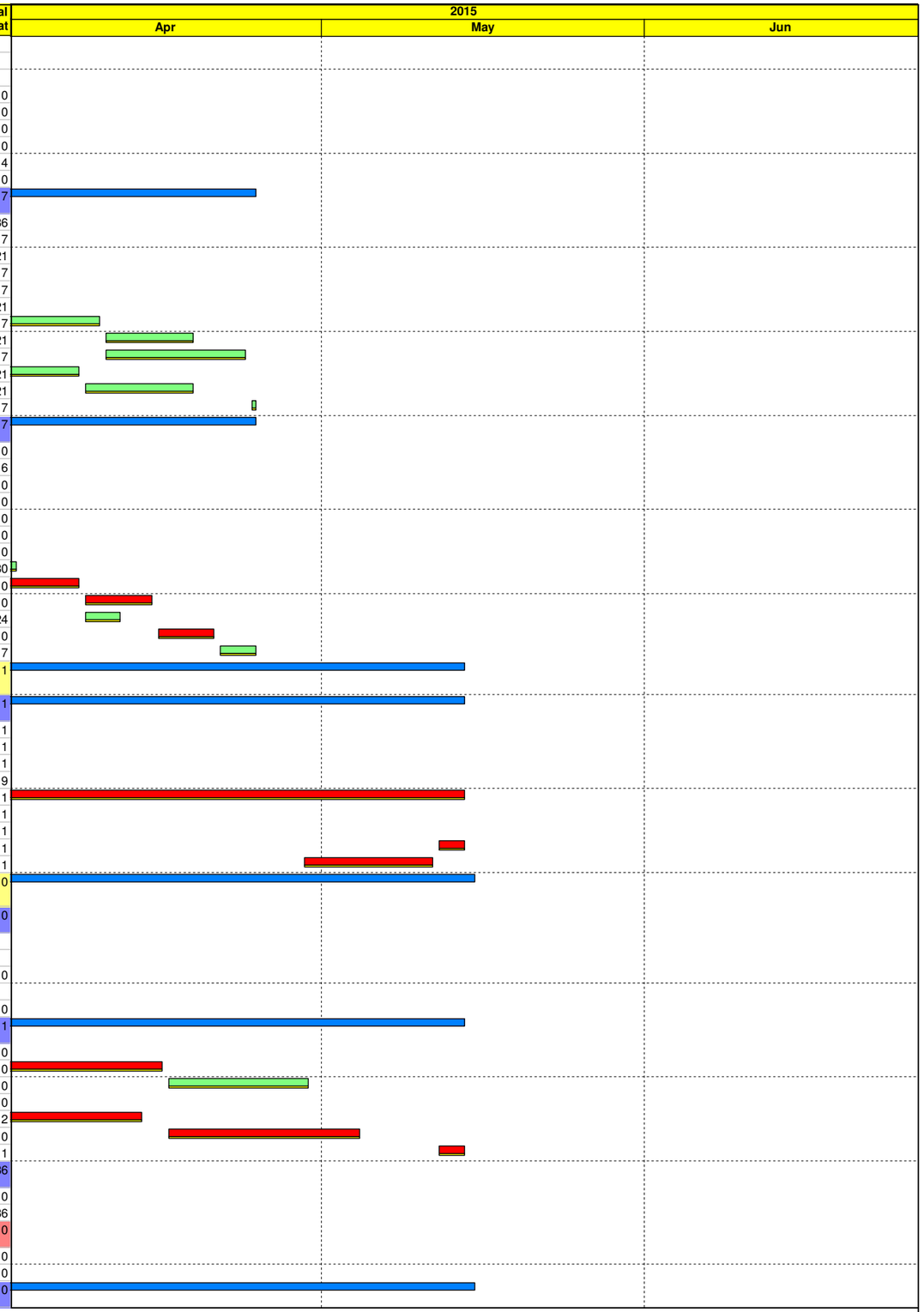


Primary Baseline
Last Month Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for TPTI (Apr 2015 - Jun 2015)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
A14490	Rebar fixing for on grade slab	3	25-Dec-14 A	30-Dec-14 A	
A14500	Formwork erection for on grade slab	3	31-Dec-14 A	16-Jan-15 A	
A14510	Concreting for on grade slab	1	17-Jan-15 A	17-Jan-15 A	
A14520	Rebar fixing for column and wall	3	19-Jan-15 A	22-Jan-15	0
A14530	Formwork erection for column and wall	2	20-Jan-15 A	23-Jan-15	0
A14540	Formwork erection for roof	3	24-Jan-15	27-Jan-15	0
A14550	Rebar fixing for roof	3	28-Jan-15	30-Jan-15	0
A14555	E&M conceal fixing	4	22-Jan-15	26-Jan-15	4
A14560	Concreting for column, wall and roof	1	31-Jan-15	31-Jan-15	0
External Wall		72	24-Jan-15	24-Apr-15	17
A14589	Backfilling	6	24-Jan-15	30-Jan-15	36
A14690	Plastering and tiling	10	26-Feb-15	09-Mar-15	17
A14700	Cat ladder installation	6	10-Mar-15	16-Mar-15	21
A14720	Meter cabinet installation	6	10-Mar-15	16-Mar-15	17
A14730	E&M fixing	12	17-Mar-15	30-Mar-15	17
A14740	Railing installation at Roof	10	17-Mar-15	27-Mar-15	21
A14745	Concrete footpath around the toilet	6	31-Mar-15	09-Apr-15	17
A14746	Disable ramp installation	8	10-Apr-15	18-Apr-15	21
A14747	Screening partition installation	12	10-Apr-15	23-Apr-15	17
A14750	Applying waterproofing at roof	6	28-Mar-15	07-Apr-15	21
A14760	Plastering and concrete roof tiling	10	08-Apr-15	18-Apr-15	21
A15220	Final touch up & cleaning	1	24-Apr-15	24-Apr-15	17
Fitting Out		47	26-Feb-15	24-Apr-15	17
A14570	Block wall erection	5	26-Feb-15	03-Mar-15	0
A14571	Window and louver installation	4	26-Feb-15	02-Mar-15	6
A14572	Applying waterproofing membrance	5	04-Mar-15	09-Mar-15	0
A14580	Plastering and tiling for wall and floor	6	10-Mar-15	16-Mar-15	0
A14600	E&M 1st fixing	6	17-Mar-15	23-Mar-15	10
A14620	Painting	6	17-Mar-15	23-Mar-15	0
A14630	Cubicle installation	4	24-Mar-15	27-Mar-15	0
A14635	Door installation	4	28-Mar-15	01-Apr-15	30
A14640	Sanitary fitting & furniture installation	6	28-Mar-15	07-Apr-15	0
A14650	E&M 2nd fixing	6	08-Apr-15	14-Apr-15	0
A14660	Sigange installation	4	08-Apr-15	11-Apr-15	24
A14670	E&M testing and commisioning	5	15-Apr-15	20-Apr-15	0
A14680	Final touch up & cleaning	4	21-Apr-15	24-Apr-15	17
Area 3		148	12-Nov-14 A	14-May-15	1
Facilities		148	12-Nov-14 A	14-May-15	1
A15430	Excavation	10	15-Dec-14 A	26-Jan-15	1
A15440	Manhole construction & underground utilities connection	12	12-Nov-14 A	30-Jan-15	1
A15450	Construction of ducting for street lighting	12	31-Jan-15	13-Feb-15	1
A15455	Construction of kerb line and road works at Hung Hing Road	18	12-Jan-15 A	24-Feb-15	19
A15456	Temporary traffic diversion along Hung Hing Road Works	46	18-Mar-15	14-May-15	1
A15460	Construction of footing for bus shelter and signage post	18	14-Feb-15	10-Mar-15	1
A15465	Construction of concrete pavement (Flexible Pavement as alternative	12	04-Mar-15	17-Mar-15	1
A15510	Road marking	3	12-May-15	14-May-15	1
A15520	Signage installation	10	29-Apr-15	11-May-15	1
External Works		149	26-Aug-14 A	15-May-15	0
TTA Submission & XP Application		103	24-Sep-14 A	31-Jan-15	0
A15170	Layout Confirmation by Transport Department	1	17-Dec-14 A	17-Dec-14 A	
A15180	Preparation of operation plan for Fleming Road Junction Convention Avenue	12	24-Sep-14 A	10-Oct-14 A	
A15190	Submission and Approval of operation plan for Fleming Road Junction Convetion Avenue	52	10-Oct-14 A	26-Jan-15	0
A15200	Preparation of operation plan for Hung Hing Road Junction Marsh Road	24	17-Nov-14 A	17-Dec-14 A	
A15210	Submission and Approval of operation plan for Hung Hing Road Junction Marsh Road	48	18-Dec-14 A	31-Jan-15	0
Hung Hing Road Junction Marsh Road		92	20-Jan-15	14-May-15	1
A15070	eProms ordering and Fabricated by EMSD	48	20-Jan-15	19-Mar-15	0
A15080	Construction of ducting and draw pits for traffic signal at Hung Hing Road (Link by link)	14	27-Mar-15	15-Apr-15	0
A15090	Construction of road island at Hung Hing Road	12	16-Apr-15	29-Apr-15	10
A15091	Construction of ducting and draw pits for traffic signal at Marsh Road	35	11-Feb-15	26-Mar-15	0
A15092	Construction of pedestrian crossing at Marsh Road	12	27-Mar-15	13-Apr-15	2
A15100	Installation of traffic signal	15	16-Apr-15	04-May-15	0
A15110	Road marking	3	12-May-15	14-May-15	1
Bus Stop at Convention Avenue		51	27-Jan-15	30-Mar-15	36
A15150	Removal of existing railing (3nos of bus stop)	12	13-Mar-15	26-Mar-15	0
A15160	Road marking (3nos of bus stop)	3	27-Mar-15	30-Mar-15	36
1 no of bus stop with bus shelter		36	27-Jan-15	12-Mar-15	0
A15540	Relocation of street lighting (1no of bus stop)	18	27-Jan-15	16-Feb-15	0
A15550	Construction of footing and erection of bus shelter	18	17-Feb-15	12-Mar-15	0
Bus Stop at Fleming Road		149	26-Aug-14 A	15-May-15	0

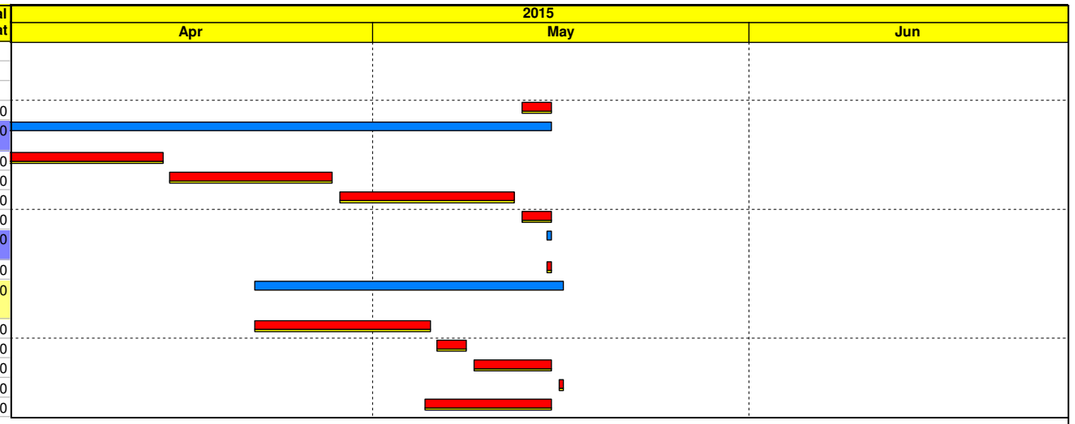


Primary Baseline
Last Month Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for TPTI (Apr 2015 - Jun 2015)

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
A15230	Relocation of street lighting	18	10-Sep-14 A	11-Nov-14 A	
A15240	Relocation of signage	12	15-Sep-14 A	26-Sep-14 A	
A15250	Construction of bus lay-by	24	26-Aug-14 A	06-Dec-14 A	
A15260	Road marking	3	13-May-15	15-May-15	0
Modification Works at Fleming Road		39	27-Mar-15	15-May-15	0
A15280	Relocation of street lighting	12	27-Mar-15	13-Apr-15	0
A15290	Modification work of island	12	14-Apr-15	27-Apr-15	0
A15300	Relocation of traffic signal	12	28-Apr-15	12-May-15	0
A15310	Road marking	3	13-May-15	15-May-15	0
Bus Stop at Harbour Road		1	15-May-15	15-May-15	0
A15270	Road marking	1	15-May-15	15-May-15	0
Statutory Inspection and Handover		22	21-Apr-15	16-May-15	0
A15051	Submission of FS314 and 251	12	21-Apr-15	05-May-15	0
A15052	FSD Inspection	3	06-May-15	08-May-15	0
A15053	FS Certificate	6	09-May-15	15-May-15	0
A15055	Handover to MTR	1	16-May-15	16-May-15	0
A15060	Trial Run	10	05-May-15	15-May-15	0



Primary Baseline
Last Month Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SCL1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Three Months Rolling Programme for TPTI (Apr 2015 - Jun 2015)

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location[2]	Description	Action Level, µg/m³	Limit Level, µg/m³
AM3[1]	Existing Harbour Road Sports Centre	169	260

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards.

Construction Noise

Regular Construction Noise Monitoring Location[1]	Description	Time Period	Action Level	Limit Level
NM2[1][2][3]	Harbour Centre (8/F)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER, agreed by IEC and EPD's formal approval is awaited. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

APPENDIX C
CALIBRATION CERTIFICATES FOR MONITORING EQUIPEMENT

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA14009/41/0006

Station: AM3 - Existing Harbour Road Sports Centre Operator: WK

Date: 19-Mar-15 Next Due Date: 18-May-15

Equipment No.: A-01-41 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	298.8	Pressure, Pa (mmHg)	762.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	10.8	3.29	55.83	7.4	2.72
2	8.8	2.97	50.43	5.9	2.43
3	6.5	2.55	43.39	4.5	2.12
4	4.3	2.07	35.36	3.1	1.76
5	2.1	1.45	24.82	1.7	1.30

By Linear Regression of Y on X

Slope , mw = 0.0453 **Intercept, bw :** 0.1677

Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.47**

Remarks:

Conducted by: Wk Tang Signature: Date: 19/3/15

Checked by: Signature: Date: 19 March 2015

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA14009/41/0007

Station: AM3 - Existing Harbour Road Sports Centre Operator: WK

Date: 13-May-15 Next Due Date: 12-Jul-15

Equipment No.: A-01-41 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	299.2	Pressure, Pa (mmHg)	761.3

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	10.8	3.28	55.76	7.6	2.75
2	8.5	2.91	49.51	5.9	2.43
3	6.7	2.59	44.00	4.6	2.14
4	4.4	2.10	35.72	3.2	1.79
5	2.3	1.51	25.93	1.8	1.34

By Linear Regression of Y on X

Slope , mw = 0.0470 **Intercept, bw =** 0.1072

Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.54**

Remarks:

Conducted by: Ivik Tang Signature: Ivik Date: 13/5/15

Checked by: [signature] Signature: [signature] Date: 13 May 2015

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

Equipment No A-04-06

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Rootsmeter S/N 0438320 Ta (K) - 293
Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233		0.9958	0.6825	0.8799
1.0044	0.9723	2.0129		0.9916	0.9599	1.2443
1.0023	1.0835	2.2505		0.9895	1.0697	1.3912
1.0011	1.1377	2.3603		0.9884	1.1231	1.4591
0.9959	1.3718	2.8467		0.9832	1.3542	1.7598
Qstd slope (m) =		2.09317		Qa slope (m) =		1.31071
intercept (b) =		-0.02195		intercept (b) =		-0.01357
coefficient (r) =		0.99997		coefficient (r) =		0.99997
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/150103
Date of Issue:	2015-01-05
Date Received:	2015-01-03
Date Tested:	2015-01-03
Date Completed:	2015-01-05
Next Due Date:	2016-01-04

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/141003/2
Date of Issue:	2014-10-04
Date Received:	2014-10-03
Date Tested:	2014-10-03
Date Completed:	2014-10-04
Next Due Date:	2015-10-03
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 56%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool
Environmental Monitoring Schedule for May 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-May	2-May
3-May	4-May	5-May	6-May	7-May	8-May	9-May
			24 hr TSP	Noise Monitoring		
10-May	11-May	12-May	13-May	14-May	15-May	16-May
		24 hr TSP	Noise Monitoring			
17-May	18-May	19-May	20-May	21-May	22-May	23-May
	24 hr TSP	Noise Monitoring			24 hr TSP	
24-May	**25-May**	26-May	27-May	28-May	29-May	30-May
		Noise Monitoring		24 hr TSP		
31-May						

Noise Monitoring Station

NM2: Harbour Centre

Air Quality Monitoring Station

AM3: Existing Harbour Road Sports Centre

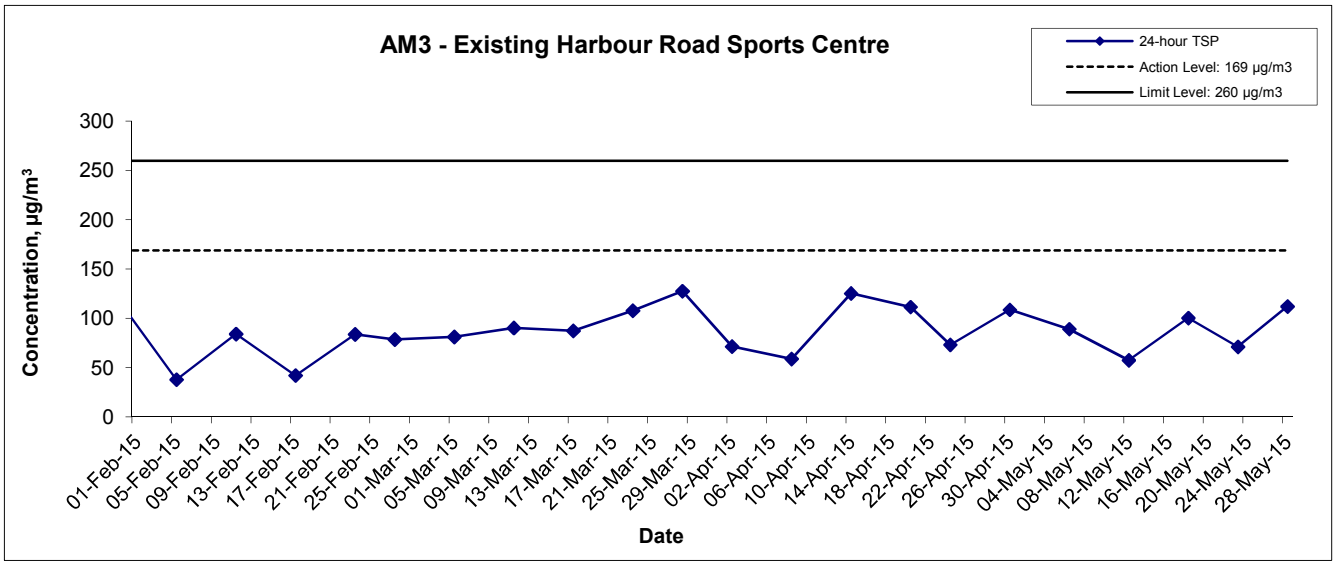
APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONIS

Appendix E - 24-hour TSP Monitoring Results

Location AM3 - Existing Harbour Road Sports Centre

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
6-May-15	13:15	Cloudy	300.9	758.3	3.2762	3.4320	0.1558	8076.6	8100.6	24.0	1.21	1.21	1.21	1746.1	89.2
12-May-15	09:00	Cloudy	297.5	762.6	3.3098	3.4113	0.1015	8100.6	8124.6	24.0	1.22	1.22	1.22	1762.3	57.6
18-May-15	09:00	Cloudy	299.8	758.3	3.3117	3.4863	0.1746	8124.6	8148.6	24.0	1.21	1.21	1.21	1738.8	100.4
23-May-15	09:00	Cloudy	297.2	757.5	3.2654	3.3897	0.1243	8148.6	8172.6	24.0	1.21	1.21	1.21	1745.8	71.2
28-May-15	09:00	Sunny	302.1	756.9	3.2402	3.4342	0.1940	8172.6	8196.6	24.0	1.20	1.20	1.20	1730.1	112.1
														Min	57.6
														Max	112.1
														Average	86.1

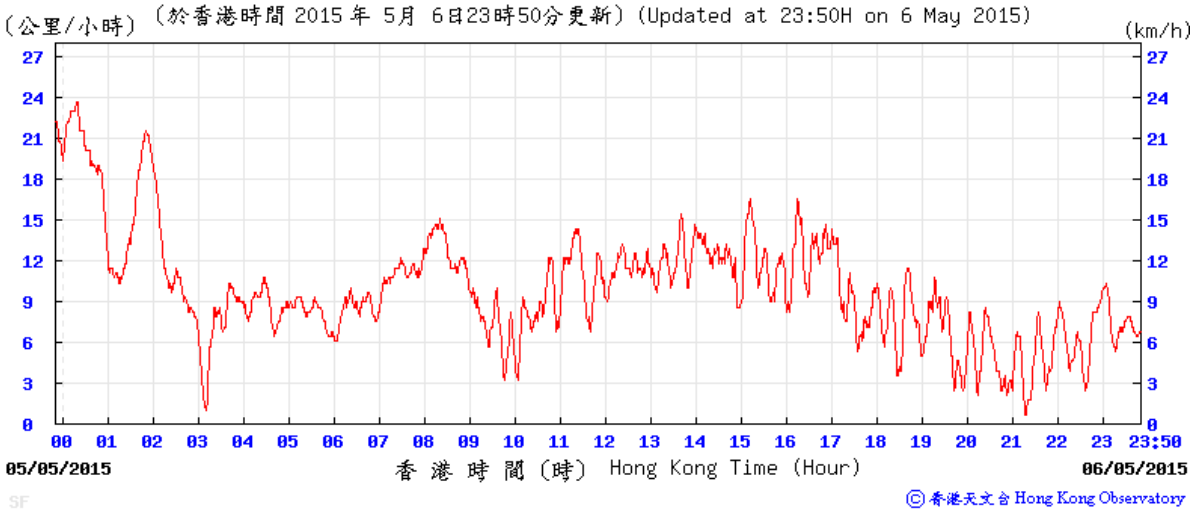
24-hour TSP Concentration Levels

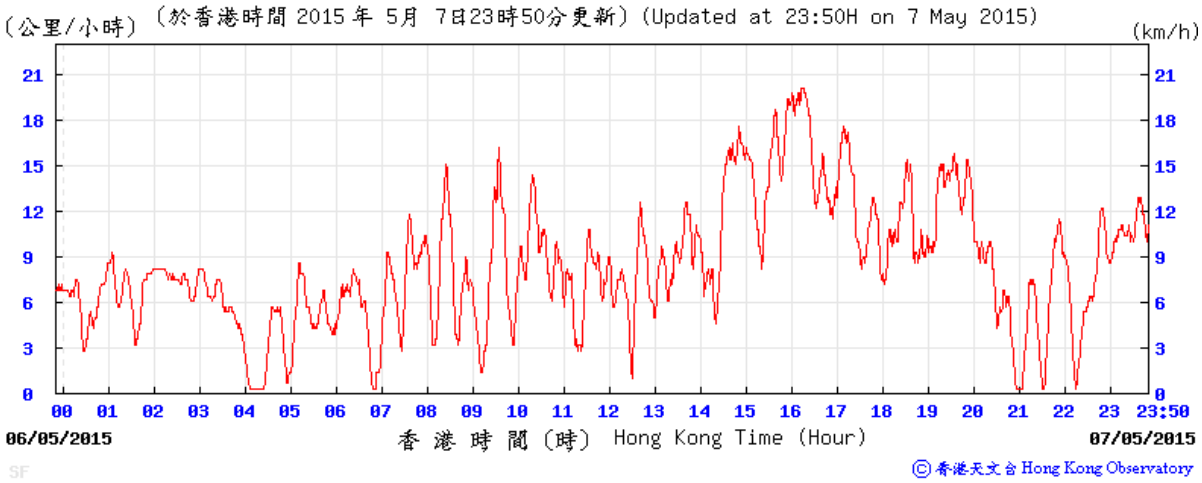


Title: Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA14009	CINOTECH
	Date: May 15	Appendix: E	

Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

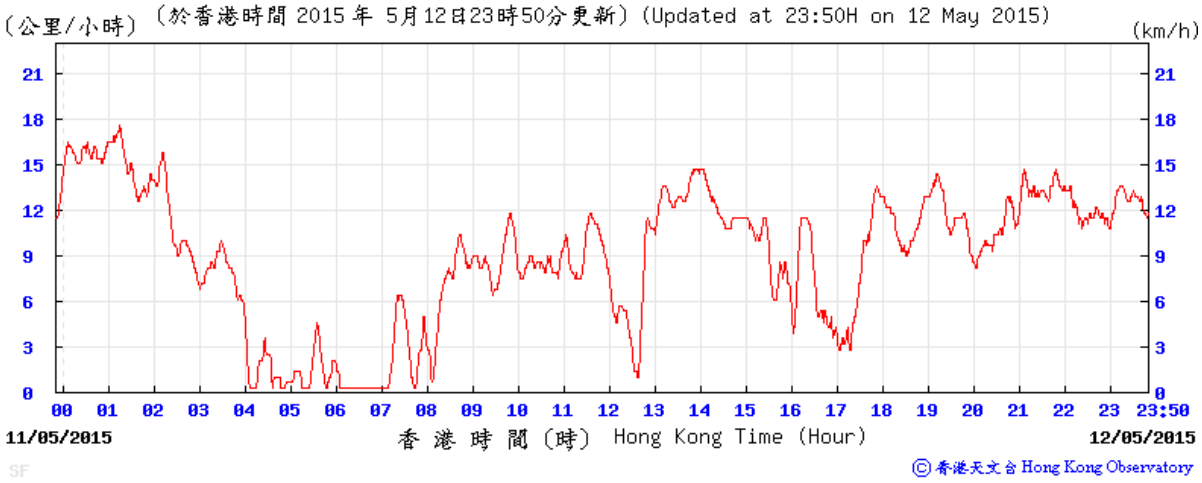
6-7 May 2015

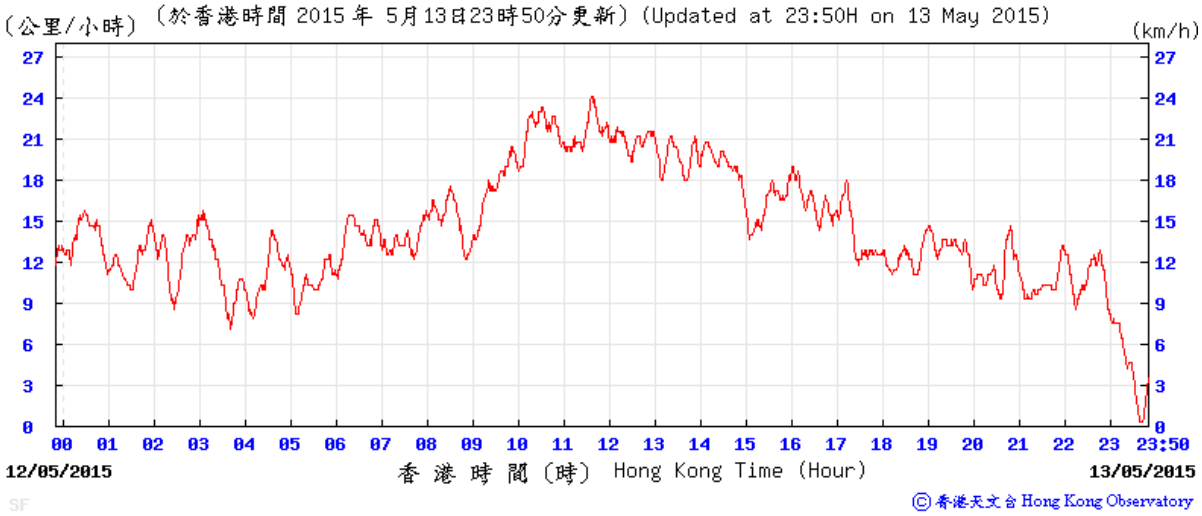




Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

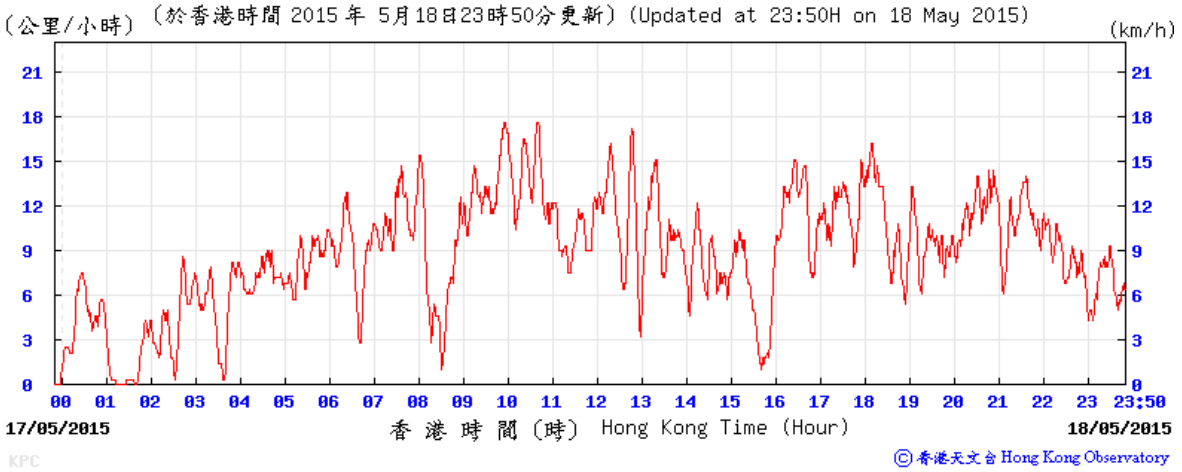
12-13 May 2015



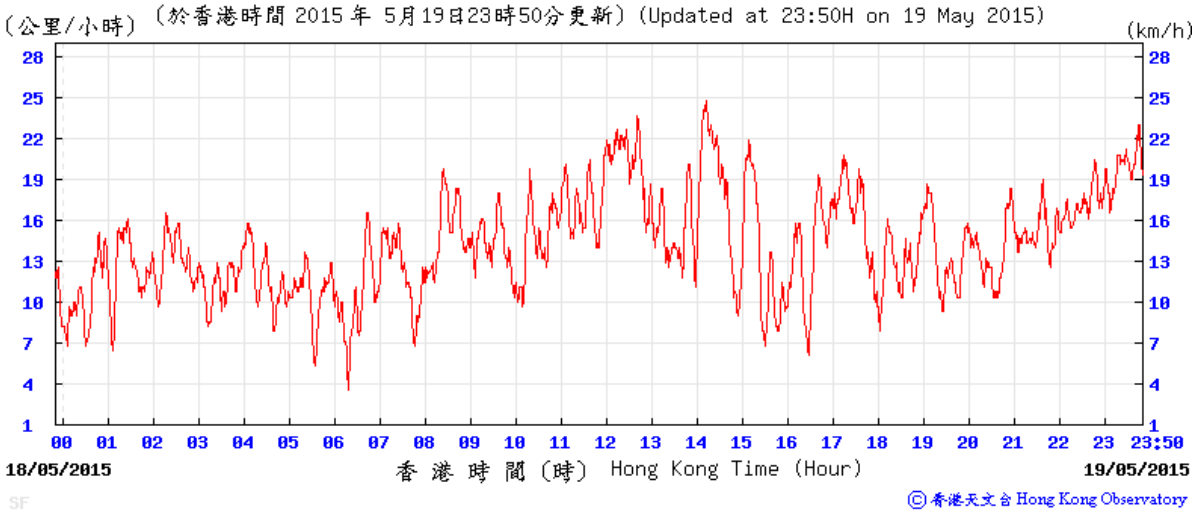


Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

18-19 May 2015

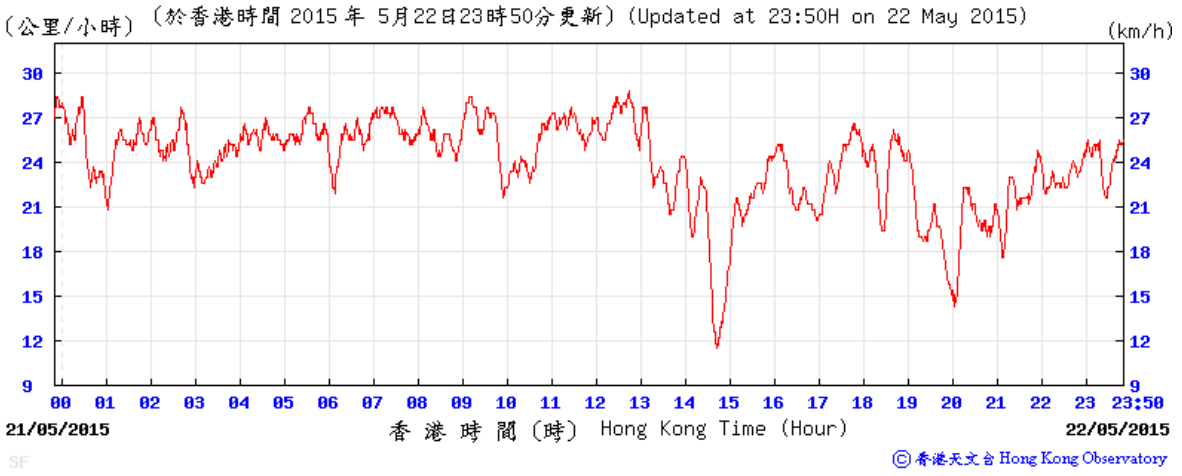


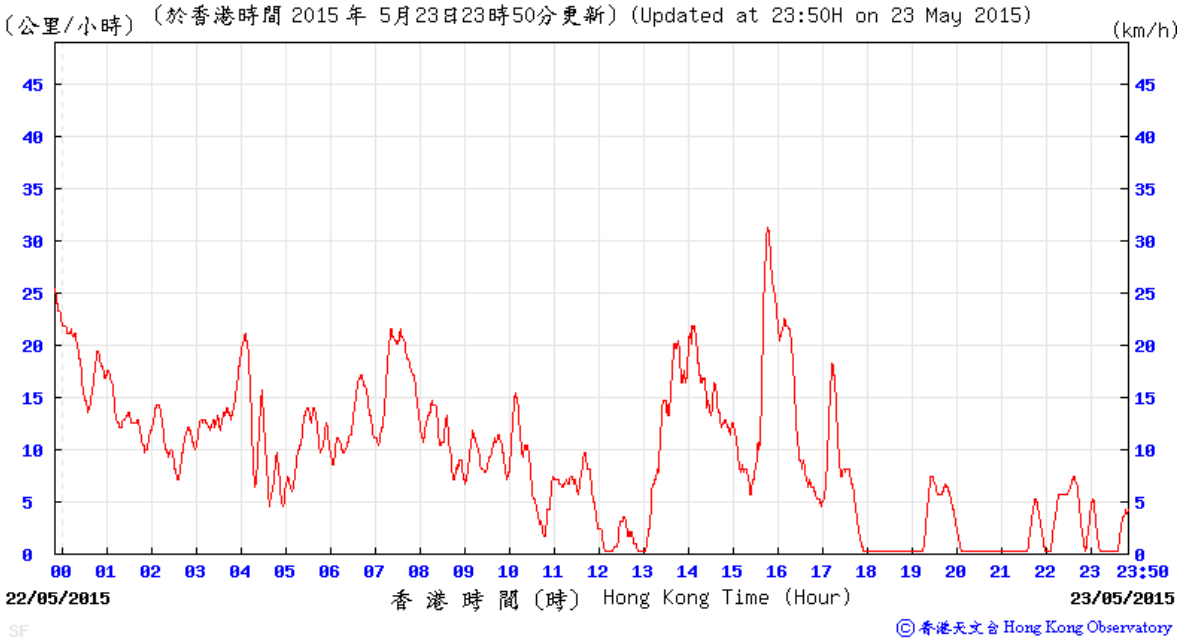
(obtained from the meteorological station at King's Park for 18 May 2015)



Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

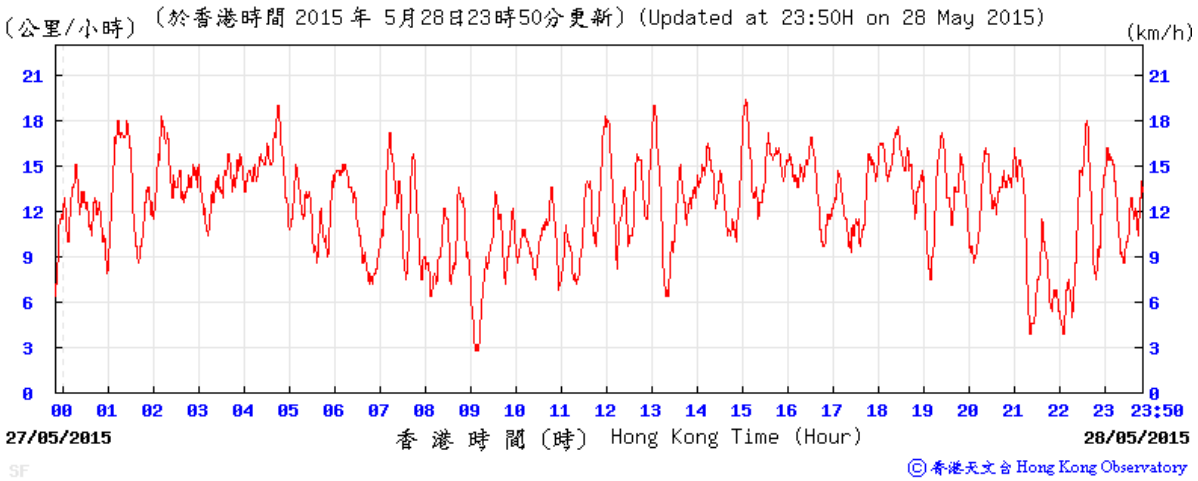
22-23 May 2015

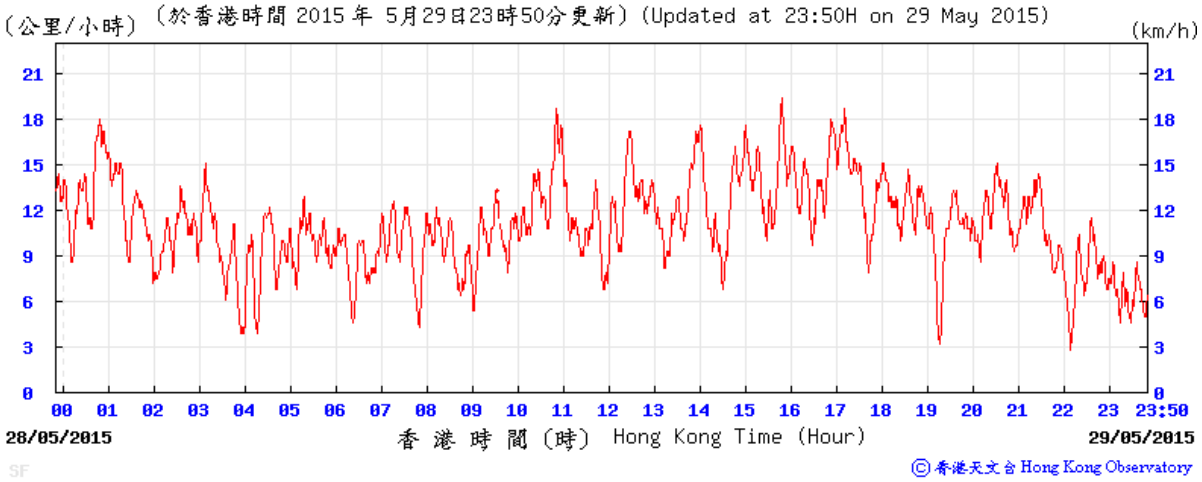




Average wind speed obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

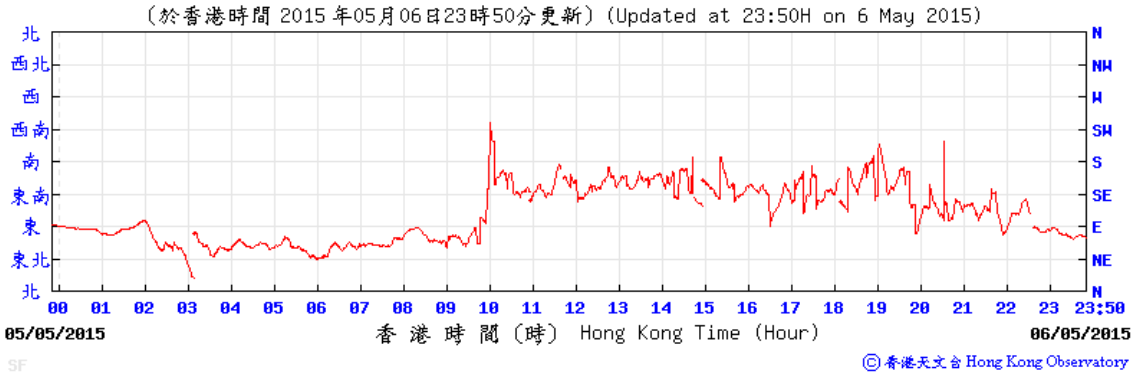
28-29 May 2015

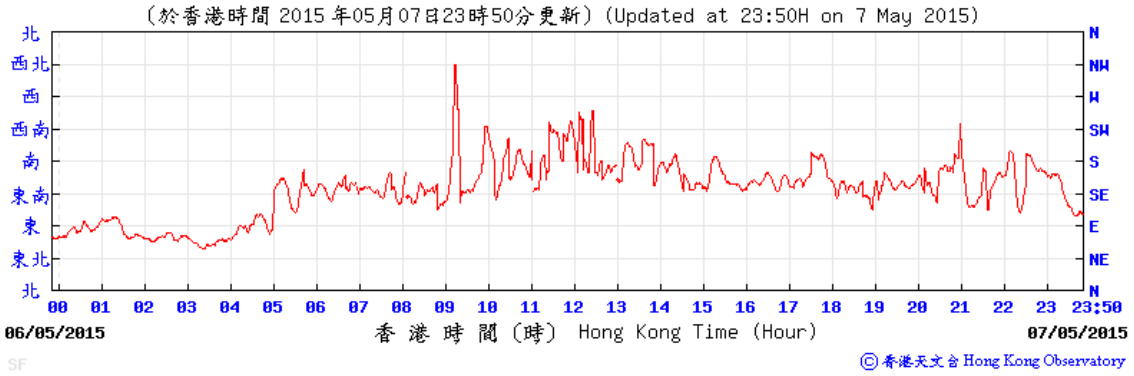




Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

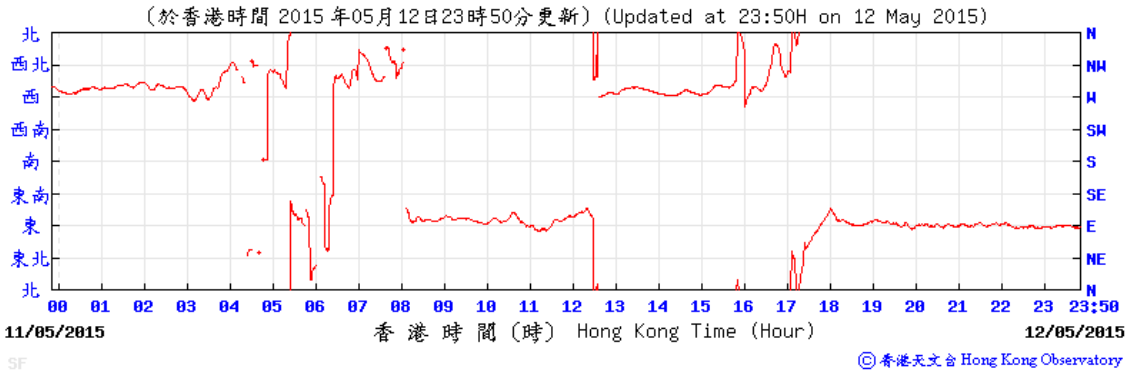
6-7 May 2015

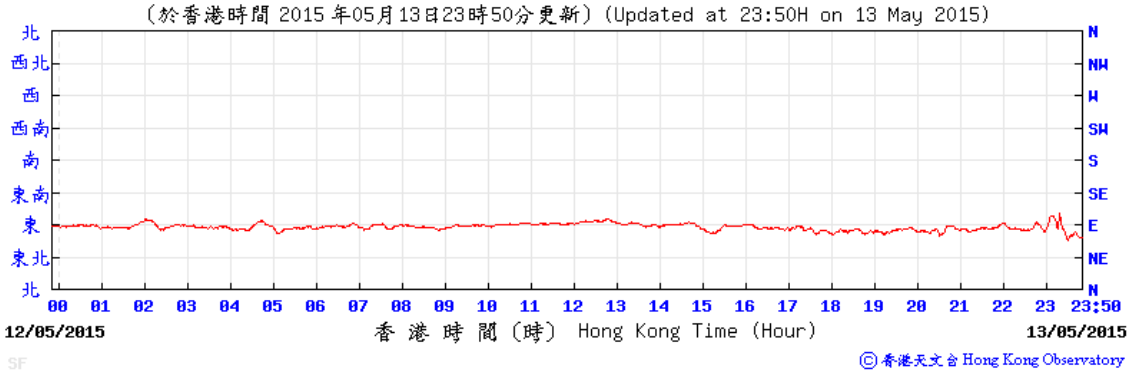




Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

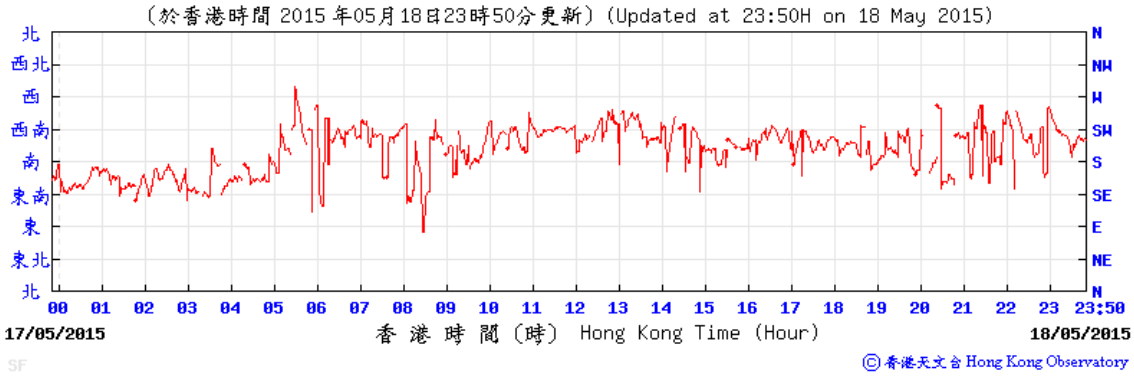
12-13 May 2015

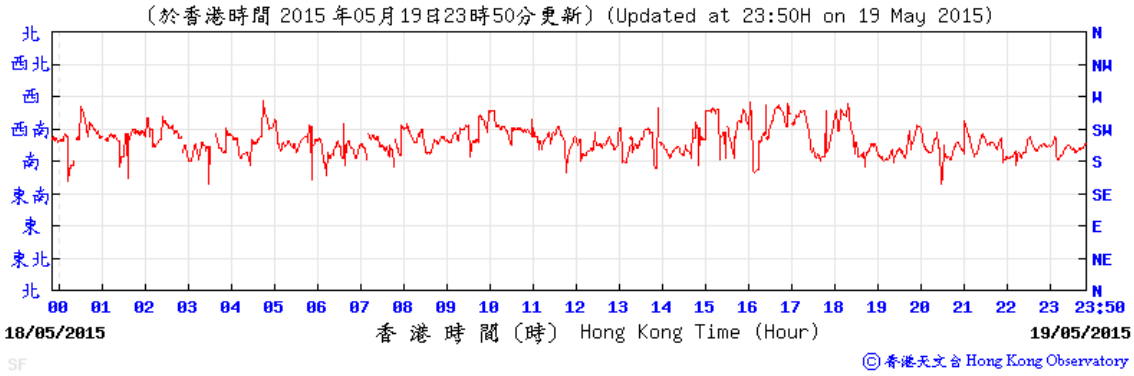




Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

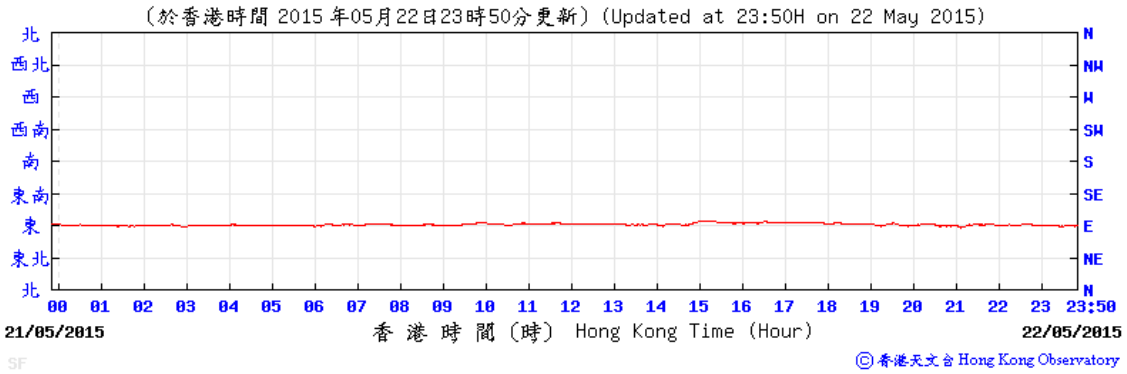
18-19 May 2015

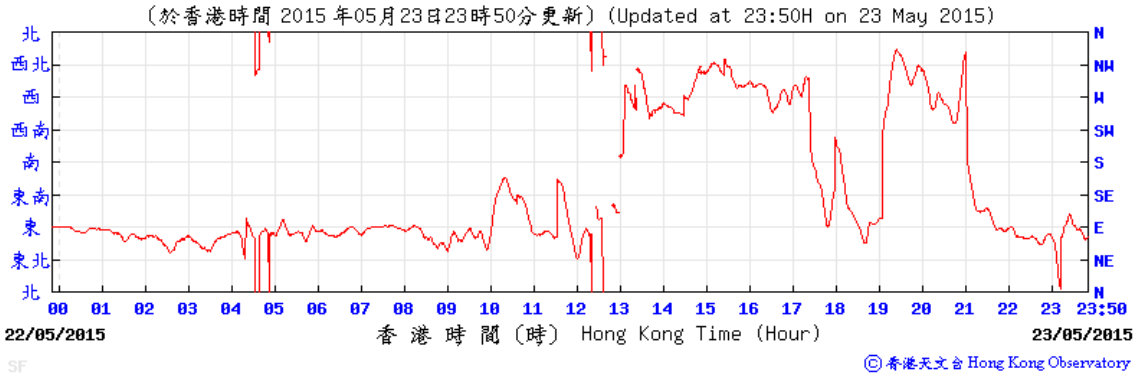




Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

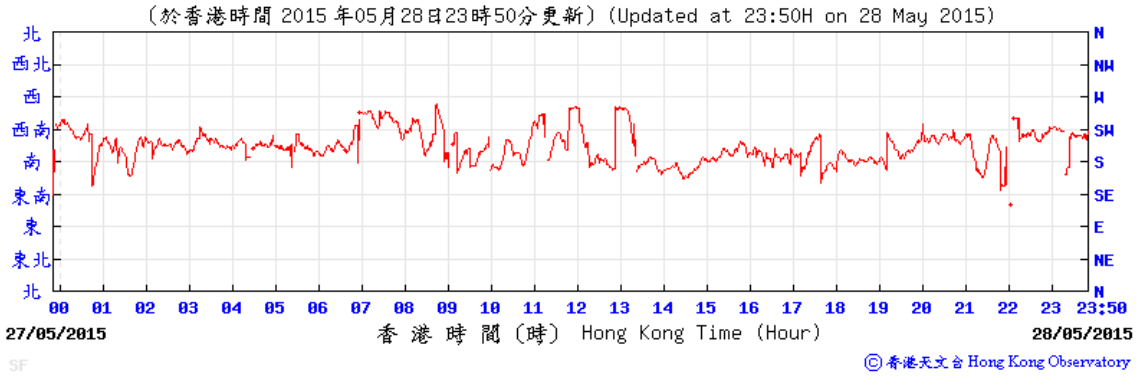
22-23 May 2015

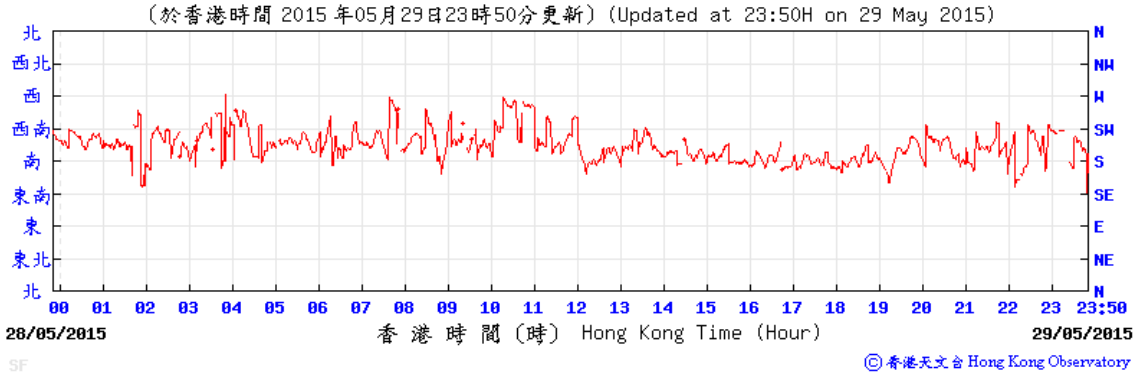




Wind direction obtained from the meteorological station at Star Ferry from the Hong Kong Observatory (HKO)

28-29 May 2015



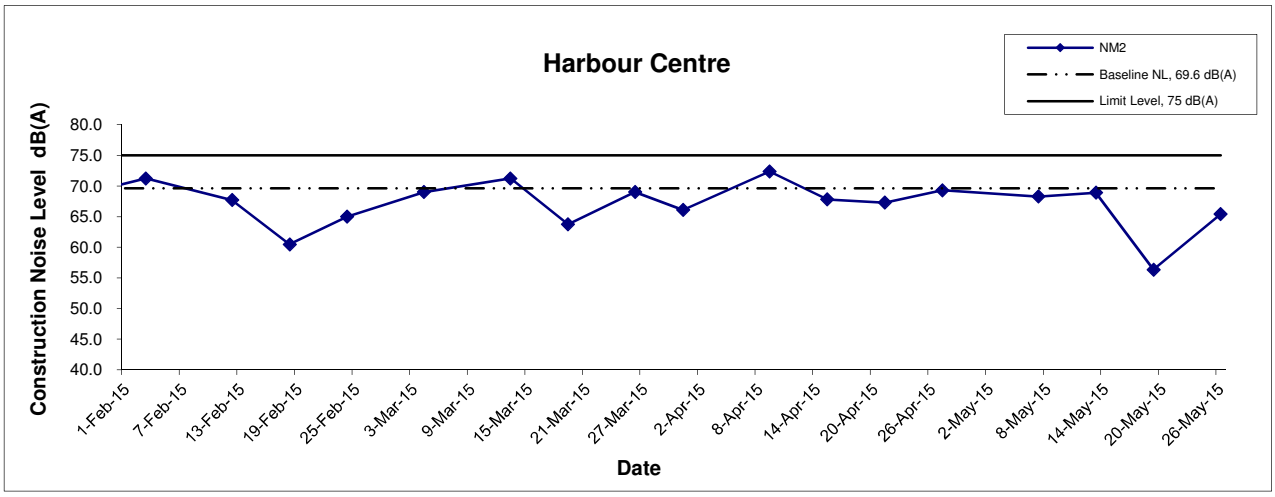


APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

App F - Noise Monitoring Results

Location NM2 - Harbour Centre							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
7-May-15	11:30	Cloudy	72.0	73.3	67.9	69.6	68.3
13-May-15	15:30	Cloudy	68.9	70.2	67.7		68.9 Measured $\leq$ Baseline
19-May-15	13:00	Cloudy	69.8	70.5	67.9		56.3
26-May-15	13:00	Cloudy	71.0	71.6	69.9		65.4

Noise Levels



Title: Shatin to Central Link - Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA14009	CINOTECH
	Date: May 15	Appendix: F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: May 2015

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150506
Date	6 May 2015 (Wednesday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:150429), no environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		6 May 2015
Checked by	Dr. Priscilla Choy		6 May 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150513
Date	13 May 2015 (Wednesday)
Time	13:30 – 15:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E – Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:150506), no environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		13 May 2015
Checked by	Dr. Priscilla Choy		13 May 2015

APPENDIX I
EVENT AND ACTION PLANS

Appendix I - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	1. Notify the Contractor, IEC and ER 2. Discuss with the ER and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures ; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification.; and 4. Implement noise mitigation proposals.
Limit Level	1. Notify the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures ; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and

Appendix I - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring the results.		exceedance is abated	6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2.Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
LIMIT LEVEL				
2.Exceedance for two or more consecutive samples	1. Notify Contractor, IEC EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)							
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	^
Landscape & Visual (Construction Phase)							
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation	Transplanting and reuse of affected trees	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM	^

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and deposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like to-like basis to the satisfaction of the relevant Government Departments	Reinstatement of temporary works areas	MTR	All works sites	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.126	The following good site practice measures shall also be incorporated in the construction phase of the project: • Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works. • Existing trees to be retained on site shall be carefully protected during construction.	Minimize landscape and visual impact	Contractor	All works areas	Construction phase	• EIAO-TM	N/A ^
Construction Dust Impact							
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m^2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A	Minimize dust impact	Contractor	All works areas	Construction phase	• APCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	programme as specified in the EM&A Manual.						
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in	Minimize dust impact	All works areas	Construction phase	• APCO • Air Pollution Control (Construction dust) Regulation	All works areas	^ ^ ^ ^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.						^ ^ ^ ^ ^
Air Quality (Construction Phase)							
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Construction Noise (Airborne)							
S9.55	The following good site practices shall be implemented: ・Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program ・Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program ・Mobile plant, if any, shall be sited as far from NSRs as possible ・Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum ・Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs ・Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	Minimize construction noise impact	Contractor	All works areas	Construction phase	・ EIAO-TM	^ ^ ^ ^ ^ ^
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver	To minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	・ EIAO-TM	N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Backhoe with hydraulic breaker						N/A
	• Breaker, excavator mounted (hydraulic)						N/A
	• Hydraulic breaker						N/A
	• Concrete lorry mixer						N/A
	• Poker, vibrator, hand-held						N/A
	• Concrete pump						N/A
	• Crawler crane, mobile						N/A
	• Mobile crane						N/A
	• Dump truck						N/A
	• Excavator						N/A
	• Truck						N/A
	• Rock drill						N/A
	• Lorry						N/A
	• Wheel loader						N/A
	• Roller vibratory						N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric)	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	 N/A N/A N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete						N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	 N/A N/A N/A N/A N/A N/A N/A N/A N/A
Water Quality (Construction Phase)							
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close	minimize release of construction wastes	Contractor	Construction works at or close	Construction phase	• EIAO-TM • WPCO	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	to the seafront: ・Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. ・Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. ・Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.	from construction works at or close to the seafront		to the seafront			^ ^ ^
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> ・ Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter	minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction phase	・EIAO-TM ・WPCO ・TM-DSS ・WDO ・ProPECC PN 1/94	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the						^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul						N/A ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <u>Boring and Drilling Water</u> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <u>Wheel Washing Water</u> • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil						^ N/A ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	and to prevent site run-off from entering public road drains. <u>Bentonite Slurries</u> • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable.						N/A N/A ^ N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Wastewater from Building Construction • Before commencing any demolition works, all sewer and drainage connections shall be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains. • Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities shall not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it shall undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary. Acid Cleaning, Etching and Pickling Wastewater • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. Wastewater from Site Facilities • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be						^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.						^ ^
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.						
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps	minimize impact from discharge of uncontaminated groundwater	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	^
S11. 253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	adequate space shall be allocated to the storage area.						
Waste Management (Construction Waste)							
S12.75	***Good Site Practices and Waste Reduction Measures*** - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment.	reduce waste management impacts	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010	^ ^ ^ ^ ^ ^
S12.76	***Good Site Practices and Waste Reduction Measures (Con't)*** - Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.);	achieve waste reduction	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and - Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.					(Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^
S12.77	***Good Site Practices and Waste Reduction Measures (Con't)*** - The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.						
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Different locations shall be designated to stockpile each material to enhance reuse						^
S12.80	***Storage, Collection and Transportation of Waste (Con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^ ^ ^ ^ ^ ^
S12.81	***Storage, Collection and Transportation of Waste (Con't)***	minimize potential	Contractor	All works sites	Construction	• DEVB TCW	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed	adverse environmental impacts arising from waste collection and disposal			phase	No. 6/2010	^
S12.83 – 12.86	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach	minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	All works sites	Construction phase	・DEVB TCW No. 6/2010 ・ETWB TCW No. 33/2002 ・ETWB TCW No. 19/2005	^ ^ ^ ^
S12.97	***Containers for Storage of Chemical Waste***	register with EPD	Contractor	All works sites	Construction	・Code of	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation	as a Chemical waste producer and store chemical waste in appropriate containers			phase	Practice on the Packaging, Labelling and Storage of Chemical Wastes	^ ^ ^
S12.98	***Chemical Waste Storage Area*** - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation;	prepare appropriate storage areas for chemical waste at works areas	Contractor	All works sites	Construction phase	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated.						^ ^
S12.98	***Chemical Waste*** - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	・Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^
S12.100	***Collection and Disposal of Chemical Waste*** A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	・Waste Disposal (Chemical Waste) (General) Regulation	^
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general	properly store and separate from other C&D materials for subsequent collection	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap.	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	and disposal				132)	
S12.102	***General Refuse (Con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap. 132)	^
S12.102	***General Refuse (Con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders	raise workers' awareness on recycling issue	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap. 132)	^

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor

* Observation/reminder was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

Contract No: **MTR SCL 1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**

Date of Report: **May, 2015**

Monthly Summary Waste Flow Table for 2015 at Public Transport Interchange

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	
Total 2014	6.395	0.019	0.000	0.000	6.376	0.000	67.705	0.000	0.000	0.000	0.173	Total Quatity in 2014
Jan	2.100	0.000	0.000	0.000	2.100	0.000	0.000	0.000	0.000	0.000	0.032	
Feb	0.305	0.000	0.000	0.000	0.305	0.000	0.000	0.000	0.000	0.000	0.027	
Mar	0.297	0.000	0.000	0.000	0.297	0.000	0.000	0.000	0.000	0.000	0.056	
Apr	0.116	0.000	0.000	0.000	0.116	0.000	0.000	0.000	0.000	0.000	0.075	
May	0.151	0.000	0.000	0.000	0.151	0.000	0.000	0.000	0.000	0.000	0.056	
Jun												
Sub-total	9.363	0.019	0.000	0.000	9.343	0.000	67.705	0.000	0.000	0.000	0.420	
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
Total	9.363	0.019	0.000	0.000	9.343	0.000	67.705	0.000	0.000	0.000	0.420	

Notes:

1) The waste flow table shall also include C&D mateials that are specified in the contract to be imported for use at the site.
2) Plastic refer to plastic bottle/ containers, plastic sheets/ foam from packaging material.
3) The general refuse with non-recyclable materials were disposed to Landfill.
   Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m^3. Assumption the densities of general refuse is 1.0 tonnes/m^3

APPENDIX L
CUMULATIVE LOG FOR COMPLAINT LOGS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

Appendix C

Monthly EM&A Report for May 2015 – SCL Works Contract 1128 South Ventilation Building to Admiralty Tunnels

AECOM

Dragages Bouygues J.V.

Shatin to Central Link -
Hung Hom to Admiralty Section

Works Contract 1128 -
South Ventilation Building (SOV) to Admiralty Tunnels

Monthly EM&A Report for
May 2015

June 2015

	Name	Signature
Prepared & Checked:	Lemon Lam	
Reviewed, Approved & Certified:	Y T Tang (Contractor's Environmental Team Leader)	

Version: 0	Date: 11 June 2015

AECOM Asia Co. Ltd.
15/F, Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 3922 9000 Fax: (852) 2317 7609 www.aecom.com

Table of Contents

Page

List of Tables

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Shatin to Central Link Contract 1128 – South Ventilation Building (SOV) to Admiralty Tunnels (hereafter called "the Project") covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities.

The EM&A programme commenced on 17 November 2014.The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 May 2015. As informed by the Contractor, major activities in the reporting period were:

Location	Site Activities
Area W1	• D-wall excavation
Area W3	• TTMS & ELS for CHT footbridge • Trial pit for Causeway/Hung Hing Flyover • Demolition of Percival footbridge
Area W4a	• Excavation of western channel
Area W4b	• Pile load test. • Excavation and pile cap construction
Area W6	• TTMS for sheetpile detection along taxi layby
WCSG	• Continue slurry wall ground replacement • Continue RC work of store and pump room • Continue E&M detailed design & procurement
Area W8	• Continue predrilling, trial trench for UU exposure • Continue pre-treatment of seawall rubble mound • A/C pipe replacement work along Convention Avenue
Area W14	• Pile removal by jacking method • Setup site office
Lung King Street	• Start pile depth investigation • Excavation to expose box culvert

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action / Limit Level of air quality was recorded in the reporting month.

Breaches of Action and Limit Levels for Noise

Noise monitoring was carried out by SCL Contract 1129. Thus, no noise monitoring and no Action/Limit Level exceedance of noise were performed in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint and no notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:-

Location	Site Activities
Area W1	• D-wall Construction
Area W3	• Demolition of staircase • Preparation Work for the Underpinning of Hung Hing Flyover/ Causeway Flyover
Area W4a	• Culvert Diversion Works
Area W4b	• Construction of Pile Cap
Area W6	• Trial Pit for left in Sheetpile • TTMS implementation
WCSG	• Ground Treatment Works • Slurry ground substitution
Area W8	• Utilities Expose/ Diversion • D-Wall • Lung King Street Run in & Trial Trench for Vertical Grouting • Replacement of AC Water Pipe
Area W14	• H-Pile Removal
Lung King Street	• Expose existing utilities above the culvert

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

1 INTRODUCTION

Dragages Bouygues J.V. (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1128. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the seventh monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 May 2015.

1.2 Report Structure

1.2.1 This monthly EM&A Report is orgainised as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/B) was issued by the Director of Environmental Protection (DEP) on 19 March 2015.

2.1.3 The construction of the SCL is divided into different civil construction works contracts and the Project comprises the Permanent Works and the associated temporary works necessary for TBM tunnels between SOV and Admiralty Tunnels, short sections of cut and cover tunnels near SOV and Fenwick Pier Emergency Egress Point (FPP), Re-provisioning, Remedial and Improvement Works (RRIW) for government and public bodies facilities under the EP.

2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The major construction activities under Works Contract 1128 include:

(a) Taking over the 160m section of the SCL tunnels (ME4 Tunnel) constructed under the Central Wan Chai Bypass (CWB) project and construction of walkways, sealing, connection and various finishing works inside the tunnels;
(b) Construction of cut and cover tunnels connecting from South Ventilation Building (SOV) to the ME4 Tunnel;
(c) Removal of temporary reclamation and reinstatement of seawall;
(d) Construction of SOV;
(e) Bored tunnels between SOV and Exhibition Station (EXH);
(f) Construction of cut and cover tunnels connecting from the SCL tunnels under Convention Avenue by Contract 1123 to the bored tunnels as stated in sub-clause
(g) Construction of Fenwick Pier Emergency Egress Point (FPP);
(h) Bored tunnels between Fenwick Pier Emergency Egress Point (FPP) and Admiralty Station (ADM);
(i) Pile/obstruction detections and removals for construction of SCL running tunnels and for future North Island Line (NIL) running tunnels;
(j) Demolition of existing Police Officer's Club (POC);
(k) Reprovisioning of new POC;
(l) Other RRIW;
(m) Essential piling works at future Government, Institution and Community (GIC) site
(n) Diversion and modification of utilities and services;
(o) Modification, re-provisioning or reinstatement of footpath, carriageway or road features;
(p) Provisions for Designated and Interfacing Contracts;
(q) Tree felling, tree compensation, transplanting works and landscaping works;
(r) Permanent reprovisioning works at the Fleet Arcade;
(s) Miscellaneous signage; and
(t) External works comprising new and reinstated roads, footpaths, drains, landscaping, staircase, street furniture and the like.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

Location	Site Activities
Area W1	• D-wall excavation
Area W3	• TTMS & ELS for CHT footbridge • Trial pit for Causeway/Hung Hing Flyover • Demolition of Percival footbridge
Area W4a	• Excavation of western channel
Area W4b	• Pile load test. • Excavation and pile cap construction
Area W6	• TTMS for sheetpile detection along taxi layby
Wan Chai Sports Ground (WCSG)	• Continue slurry wall ground replacement • Continue RC work of store and pump room • Continue E&M detailed design & procurement
Area W8	• Continue predrilling, trial trench for UU exposure • Continue pre-treatment of seawall rubble mound • A/C pipe replacement work along Convention Avenue
Work Area 14a & 14b	• Pile removal by jacking method • Setup site office
Lung King Street	• Start pile depth investigation • Excavation to expose box culvert

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1.**

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. T.C. Lam	3143 9129	3127 6424
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
JV	Contractor	Project Director	Mr. Alain Hervio	6112 9197	2171 3715
		Environmental Manager	Mr. Marcus Cheung	6628 2685	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012/B	19-Mar-15	-	Valid	-
Construction Noise Permit				
GW-RS1216-14	07-Nov-14	06-May-15	Valid	Lung King Street near DSD Screening Plant (W14)
GW-RS1271-14	15-Nov-14	14-May-15	Valid	Rest Garden near Wan Chai Interchange (W4)
GW-RS1345-14	04-Dec-14	01-Jun-15	Valid	Wai Chai Interchange – Tunnel Approach Rest Garden (W4a/b)
GW-RS0186-15	24-Feb-15	23-Aug-15	Valid	Victoria Park Road near Police Officer Club (W1)
GW-RS0210-15	09-Mar-15	08-Sep-15	Valid	Lung King Street near DSD Screening Plant (W14)
GW-RS0211-15	02-Mar-15	01-Sep-15	Valid	An area near Lung King Street and Convention Avenue (W8)
GW-RS0263-15	16-Mar-15	15-Sep-15	Valid	Works Area at Junction of Tonnochy Road (WCSG)
GW-RS0386-15	06-Apr-15	05-Jul-15	Valid	Former Tunnel Approach Rest Garden
GW-RS0392-15	12-Apr-15	11-Oct-15	Valid	An area near Lung King Street and Convention Avenue (W8) – Grouting
GW-RS0406-15	16-Apr-15	15-Oct-15	Valid	Victoria Park Road near Police Officer Club (W1) - Concreting
GW-RS0557-15	29-May-15	15-Oct-15	Valid	Victoria Park Road near Police Officer Club (W1) – PME change for the working area (Replace GW-RS0406-15)
GW-RS0497-15	16-May-15	31-Oct-15	Valid	An area near Lung King Street and Convention Avenue (W8) – Grouting
GW-RS0485-15	9-May-15	15—May-15	Valid	Works Area at Junction of Tonnochy Road (WCSG) – Cover Walkway)
Wastewater Discharge License				
WT00020512-2014	09-Dec-14	31-Dec-19	Valid	Victoria Park Road near Police Officer Club (POC) (W1)
WT00020473-2014	09-Dec-14	31-Dec-19	Valid	Gloucester Road near Hung Hing Road (W4)
WT00020474-2014	09-Dec-14	31-Dec-19	Valid	Wang Shing Street (W6)

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
WT00020475-2014	09-Dec-14	31-Dec-19	Valid	Lung King Street (W14)
WT00020595-2014	22-Dec-14	31-Dec-19	Valid	Junction of Tonnochy Road and Hung Hing Road near Wan Chai Sports Ground
WT00020896-2015	24-Mar-2015	31-Mar-2020	Valid	Junction of Lung King Street and Convention Avenue (W8)
WT00021519-2015	04-May-2015	31-May-2020	Valid	Between Percival Street Footbridge and Hung Hing Road Flyover (W3)
Chemical Waste Producer Registration				
5213-135-D2551-01	16-Dec-14	End of the Project	Valid	Gloucester Road near Hung Hing Road (W4)
5213-134-D2552-01	16-Dec-14	End of the Project	Valid	Lung King Street near DSD Screening Plant (W14)
5111-151-D2552-02	05-Jan-15	End of the Project	Valid	Victoria Park Road near POC (W1)
Billing Account for Construction Waste Disposal				
7020686	15-Sep-14	End of Contract	Valid	For disposal of C&D waste to public fills and landfills
Notification Under Air Pollution Control (Construction Dust) Regulation				
378806	02-Sep-14	End of Contract	Valid	For Wan Chai, Causeway Bay, Hong Kong Island
380227	07-Oct-14	End of Contract	Valid	For Gloucester Road near Cross Harbour Tunnel
380228	07-Oct-14	End of Contract	Valid	Near Convention Avenue and Fenwick Pier Street, HK Island

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:10273 and S/N:809))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0988))

Monitoring Locations

3.1.3 Two monitoring station were set up at the proposed location in accordance with the approved EM&A Manuals for SCL(HUH-ADM) as well as the works areas of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

ID	Air Sensitive Receiver (ASR) ID in EIA Report	Dust Monitoring Station
AM2*	EXA6	Wanchai Sports Ground
AM4	EXA4	Pedestrian Plaza

* The monitoring station at AM2 was handed-over from Contract SCL1126 in April 2015.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) Two samplers should not be placed less than 2m apart from each others;
(iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
(v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(vi) No furnace or incinerator flues nearby.
(vii) Airflow around the sampler was unrestricted.
(viii) The sampler was located more than 20 meters from any dripline.

(ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(x) Permission was obtained to set up the samplers and access to the monitoring station.
(xi) A secured supply of electricity was obtained to operate the sampler.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminium strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in May 2015 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Locations

3.2.2 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.4** and shown in **Figure 3.1**.

Table 3.4 Noise Monitoring Station during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station
NM1*	CH2	Hoi Kung Court

* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

3.3 Landscape and Visual

3.3.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6.**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C.** Status of required submissions under the EP during the reporting period is summarised in **Table 4.1.**

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/B)	Monthly EM&A Report for April 2015	14 May 2015

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2	38.6	31.8 – 52.2	160	260
AM4	66.9	38.5 – 95.5	198	260

5.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring location in the reporting month.

5.1.3 The event and action plan is annexed in **Appendix H**.

5.1.4 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Construction Noise Monitoring

5.2.1 Noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

5.2.2 The monitoring results for noise are summarized in **Table 5.2**.

Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM1 (*)	<Baseline	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.2.3 No noise complaint was received in the reporting month; hence, no Action Level exceedance was recorded.

5.2.4 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting month.

5.2.5 The event and action plan is annexed in **Appendix H**.

5.2.6 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, 4,500.4m^3 of inert C&D material was generated (4,496.7m^3 and 3.7 m^3 were disposed of as fill bank at TKO137 and TM38 respectively) in the reporting month. 11.3m^3 general refuse was generated in the reporting month. No metals, no paper/cardboard packaging material and no plastic was collected by recycling contractor in the reporting month. No inert C&D materials were reused on site. No chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix J**.

5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 11 and 29 May 2015. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 4 site inspections were carried out on 4, 11, 18 and 29 May 2015. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 11 May 2015. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	Nil	Nil	Nil
Noise	Nil	Nil	Nil
Water Quality	4 May 15	• Grit and construction materials deposited inside the u-channel was observed at W14. The Contractor should remove the grit and store the construction materials properly.	The items were rectified by the Contractor on 8 May 15.
		• Debris accumulated inside the u-channel was observed at SIC. The Contractor should remove the debris regularly.	
	11 May 15	• Gully in W14b was observed without sufficient mitigation measure to avoid site water discharge. The Contractor was advised to block the gully with sand bag.	The items were rectified by the Contractor on 15 May 15.
		• Potential discharge of muddy water was observed at WCSG and W4. For WCSG, workers was observed spraying water toward public road to wash the soil deposit. While in W4, potentially discharge of runoff to public drainage from a slope was observed. The Contractor was advised to provide proper mitigation measures to avoid the direct discharge of site wastewater	
		Reminder: • The Contractor was reminded to set up the AquaSed in WCSG as soon as possible.	The AquaSed to be set up by the Contractor soon.
Waste/ Chemical Management	4 May 15	• Water accumulated inside the drip trays were observed at W14. The Contractor should remove the water and dispose of as chemical properly.	The item was rectified by the Contractor on 4 May 15.
	11 May 15	• Chemical container was observed placing on ground without secondary containment in W14. The Contractor was advised to provide drip tray to the chemicals.	The items were rectified by the Contractor on 15 May 15.
		• Chemical waste was observed storing within the general refuse skip in W8 and W14. The Contractor should store the chemical waste storage area and dispose them as chemical waste.	
		• Waste was observed storing together with construction material. The Contractor should sort and store the material and refuse properly.	
	18 May 15	• Batteries for spare use was observed placed on bare ground without provision of drip tray and shelter at WCSG. The Contractor shall store the batteries with drip tray and shelter to prevent chemical leakage to the soil due to aging of the battery boxes.	The items were rectified by the Contractor on 20 May 15.
		• Stagnant water inside the drip tray was observed at WCSG. The Contractor should remove the water and dispose of as chemical waste properly.	
		• Oil leakage to soil was observed at the junction of two pipes at W14a. The Contractor should repair or replace the pipes to ensure no further oil leakage. Also, remove the contaminated soil as chemical waste correspondingly.	The items were rectified by the Contractor on 22 May 15.
		• Chemical tanks storing waste batteries were observed without proper label at W14b. The Contractor should label the tanks properly.	
		Reminder: • Labels on the chemical tanks were observed to be dampened and damaged at WCSG. The Contractor was reminded to renew the labels.	Information provided by the Contractor that the containers are used for storing soil samples.
	29 May 15	• An oil drum was observed without provision of drip tray. The Contractor should provide drip tray to the oil drum to retain any unexpected leakage.	The items were rectified by the Contractor on 30 May 15.
		• Stagnant water was observed in the drip tray. The Contractor should remove the stagnant water and dispose it as chemical waste.	

Parameters	Date	Observations and Recommendations	Follow-up
Landscape & Visual	Nil	Nil	Nil
Permits/ Licenses	Nil	Nil	Nil

6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.

6.1.4 The items of which their inspection for follow-up actions were outstanding as recorded in the last reporting month have already been rectified by the Contractor as confirmed by the ET during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting month.

7.1.2 No noise monitoring was carried out in the reporting month. Thus, no Action/ Limit Level exceedance for noise was performed in the reporting month.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix I**.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix I**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works in between June and August 2015 will be:

Location	Site Activities
Area W1	• D-wall Construction
Area W3	• Demolition of staircase • Preparation Work for the Underpinning of Hung Hing Flyover/ Causeway Flyover
Area W4a	• Culvert Diversion Works
Area W4b	• Construction of Pile Cap
Area W6	• Trial Pit for left in Sheetpile • TTMS implementation
WCSG	• Ground Treatment Works • Slurry ground substitution
Area W8	• Utilities Expose/ Diversion • D-Wall • Lung King Street Run in & Trial Trench for Vertical Grouting • Replacement of AC Water Pipe
Area W14	• H-Pile Removal
Lung King Street	• Expose existing utilities above the culvert

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring in between June 2015 and August 2015 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 24-hour TSP monitoring was carried out in the reporting month.

9.1.2 All 24-hour TSP monitoring result complied with the Action / Limit Level at in the reporting month.

9.1.3 No noise monitoring was carried out in the reporting month. Thus, no Action/ Limit Level exceedance for noise was performed in the reporting month.

9.1.4 4 nos. of environmental site inspections were carried out in May 2015. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

9.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- No specific observation was identified in the reporting month.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- Implement effective/preventive measures to avoid site runoff from the site;
- Provide proper drainage system management.
- Provide sedimentation facility on site.

Chemical and Waste Management

- Provide proper chemical and waste management.

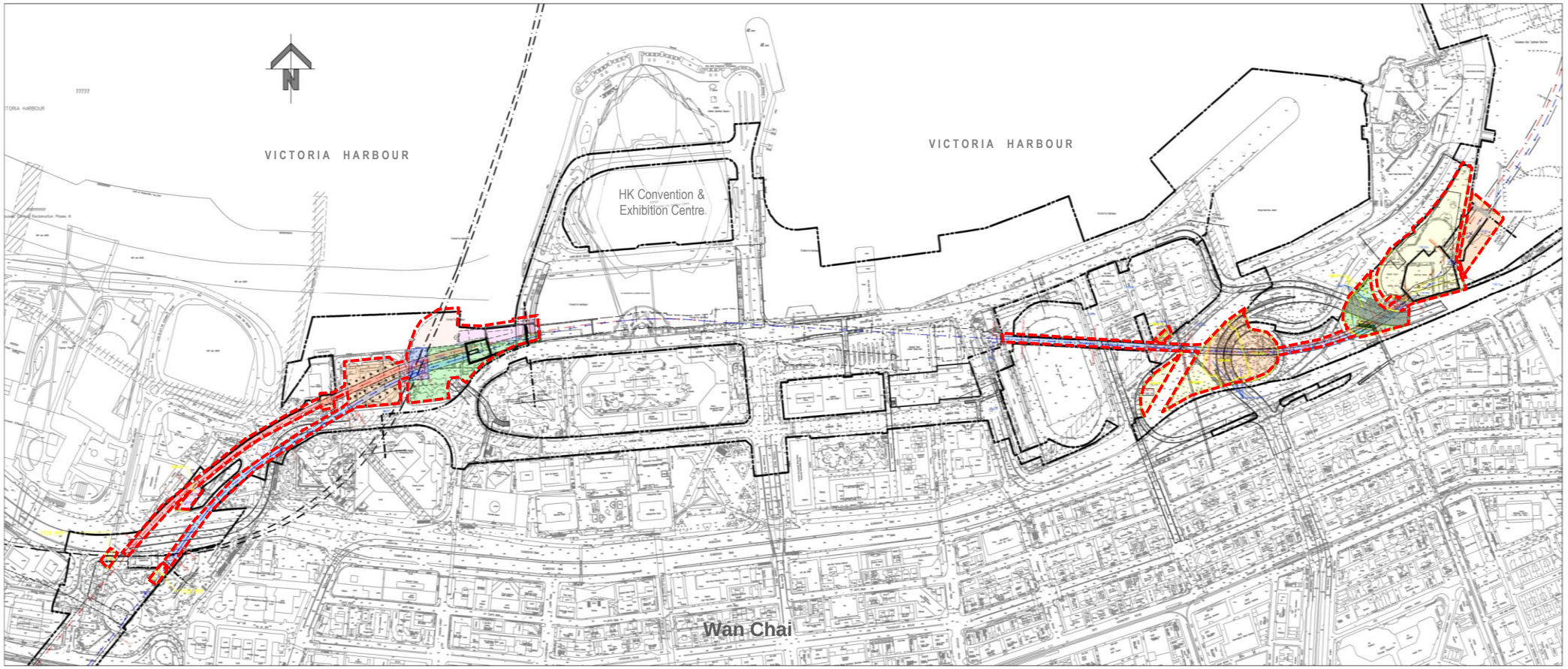
Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES



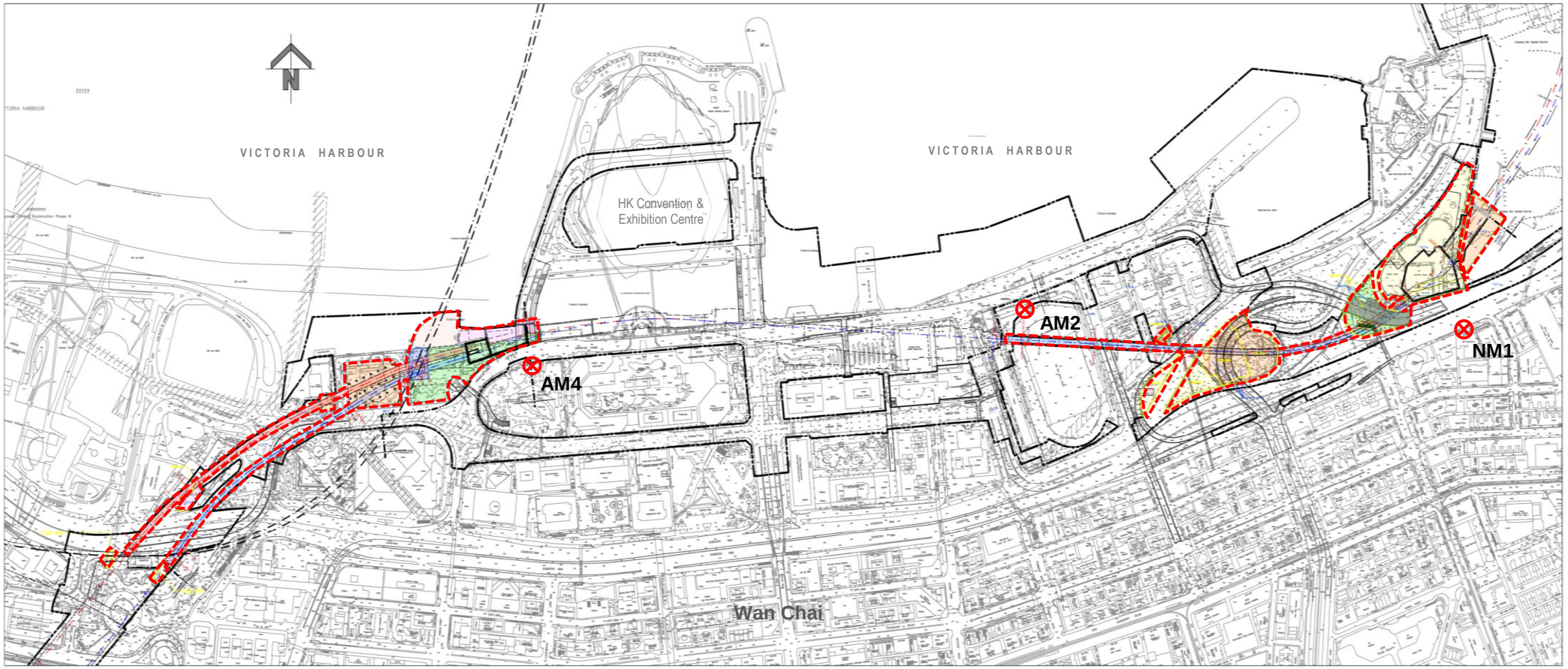
Site Alignment

SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

AECOM

SITE LAYOUT PLAN of SCL1128

Project No.: 60331173 **Date: December 2014** **Figure 1.1**



* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

SCL Contract 1128
South Ventilation Building to Admiralty Tunnels

AECOM

Air Quality and Noise Monitoring Loactions

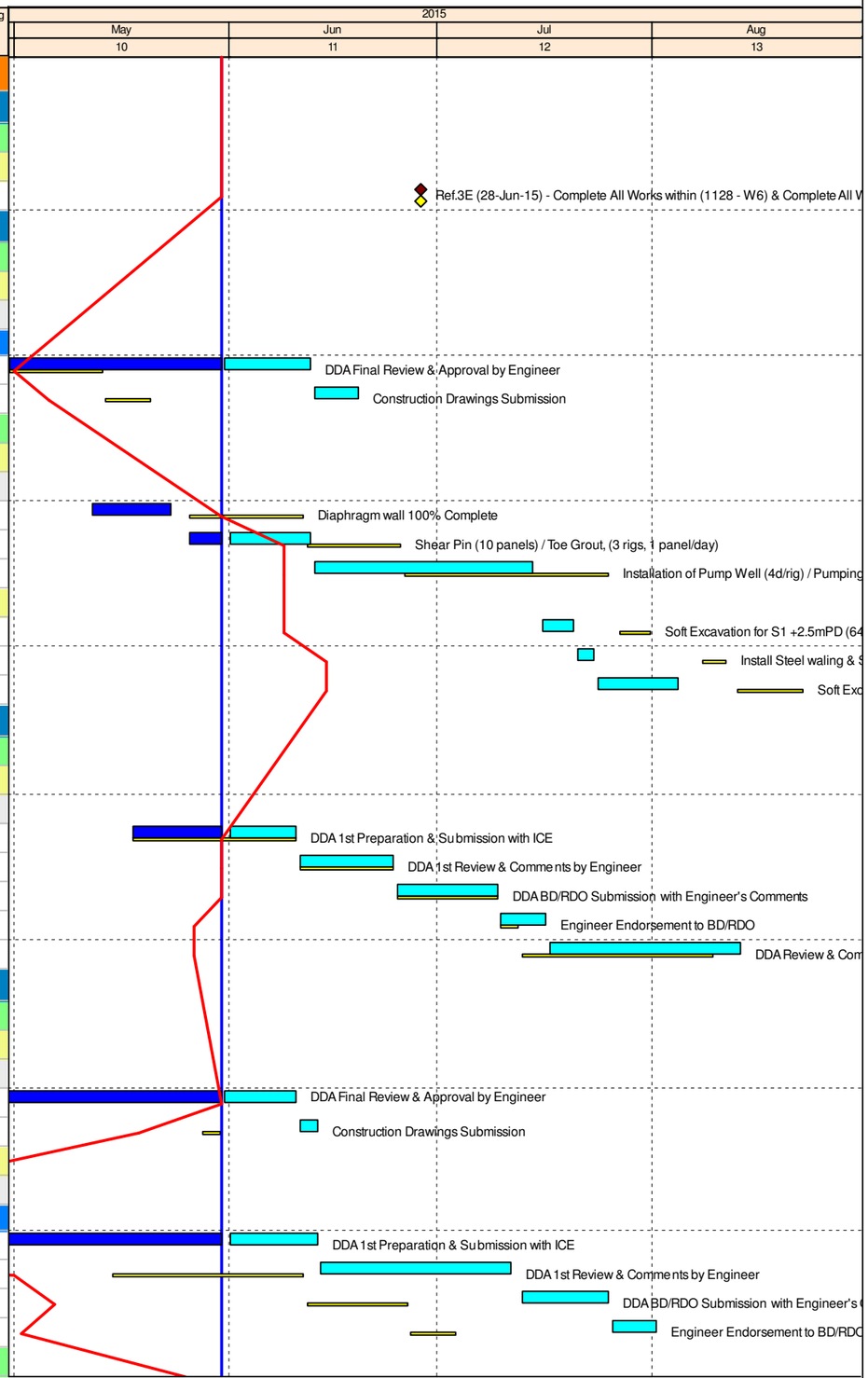
Project No.: 60331173 **Date: May 2015** **Figure 3.1**

APPENDIX A

Construction Programme

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration
SCL 1128 - SOV to Admiralty Tunnel_3 Month Rolling Programme (May-15)						
Contract Dates						
Schedule of Critical Dates						
Specified Parts of the Works						
01128.CD04	Ref.3E (28-Jun-15) - Complete All Works within (1128 - W6) & Complete All Works requiring access to (1128 - W6)	0		28-Jun-15*	0%	0
Cost Centre B - Cut & Cover Tunnel to SOV (Advance Shaft)						
Design Submission						
Advance Launch Shaft at Area W1 (Alternative Scheme)						
Temporary ELS - Part 2 Struting Design						
DDA						
01128.BDS00230	DDA Final Review & Approval by Engineer	28	30-Apr-15A	12-Jun-15	50%	13
01128.BDS00240	Construction Drawings Submission	6	13-Jun-15	19-Jun-15	0%	6
D.Wall & Excavation						
Cofferdam						
Works Area W2a, 2b & 2c access						
01128.CCB00164	Diaphragm wall 100% Complete	13	12-May-15A	23-May-15A	100%	0
01128.CCB00170	Shear Pin (10 panels) / Toe Grout, (3 rigs, 1 panel/day)	18	26-May-15A	12-Jun-15	5%	10
01128.CCB00180	Installation of Pump Well (4d/rig) / Pumping Test	24	13-Jun-15	14-Jul-15	0%	24
Excavation						
01128.CCB00190	Soft Excavation for S1 +2.5mPD (648m3, 200m3/d)	4	16-Jul-15	20-Jul-15	0%	4
01128.CCB00210	Install Steel waling & Struct S1 +3.5mPD	3	21-Jul-15	23-Jul-15	0%	3
01128.CCB00220	Soft Excavation for S2 -1.5mPD (1728m3, 200m3/d)	9	24-Jul-15	04-Aug-15	0%	9
Cost Centre C - South Ventilation Building (SOV)						
Design Submission						
Temporary ELS - Part 1 D.Wall						
DDA						
01128.CDS00040	DDA 1st Preparation & Submission with ICE	20	18-May-15A	10-Jun-15	50%	9
01128.CDS00050	DDA 1st Review & Comments by Engineer	14	11-Jun-15	24-Jun-15	0%	14
01128.CDS00060	DDA BD/RDO Submission with Engineer's Comments	12	25-Jun-15	09-Jul-15	0%	12
01128.CDS00070	Engineer Endorsement to BD/RDO	7	10-Jul-15	16-Jul-15	0%	7
01128.CDS00080	DDA Review & Comments by BD/RDO	28	17-Jul-15	13-Aug-15	0%	28
Cost Centre D - SOV to EXH TBM Tunnels						
Design Submission						
Eastern TBM Tunnel Lining Design						
DDA						
01128.DDS00680	DDA Final Review & Approval by Engineer	28	30-Apr-15A	10-Jun-15	50%	11
01128.DDS00720	Construction Drawings Submission	3	11-Jun-15	13-Jun-15	0%	3
Sump Pit (SP5) Submission						
Temporary Support and Strengthening Structures						
DDA						
01128.DDS01120	DDA 1st Preparation & Submission with ICE	28	02-Feb-15A	13-Jun-15	60%	12
01128.DDS01130	DDA 1st Review & Comments by Engineer	28	14-Jun-15	11-Jul-15	0%	28
01128.DDS01140	DDA BD/RDO Submission with Engineer's Comments	12	13-Jul-15	25-Jul-15	0%	12
01128.DDS01150	Engineer Endorsement to BD/RDO	7	26-Jul-15	01-Aug-15	0%	7
TBM (Slurry) Procurement, Manufacture & Delivery						



Primary Baseline
Actual Work
Non Critical Activity
Critical Activity
Baseline Milestone
Milestone

11283MRP150531

SCL 1128 - SOV to Admiralty Tunnels

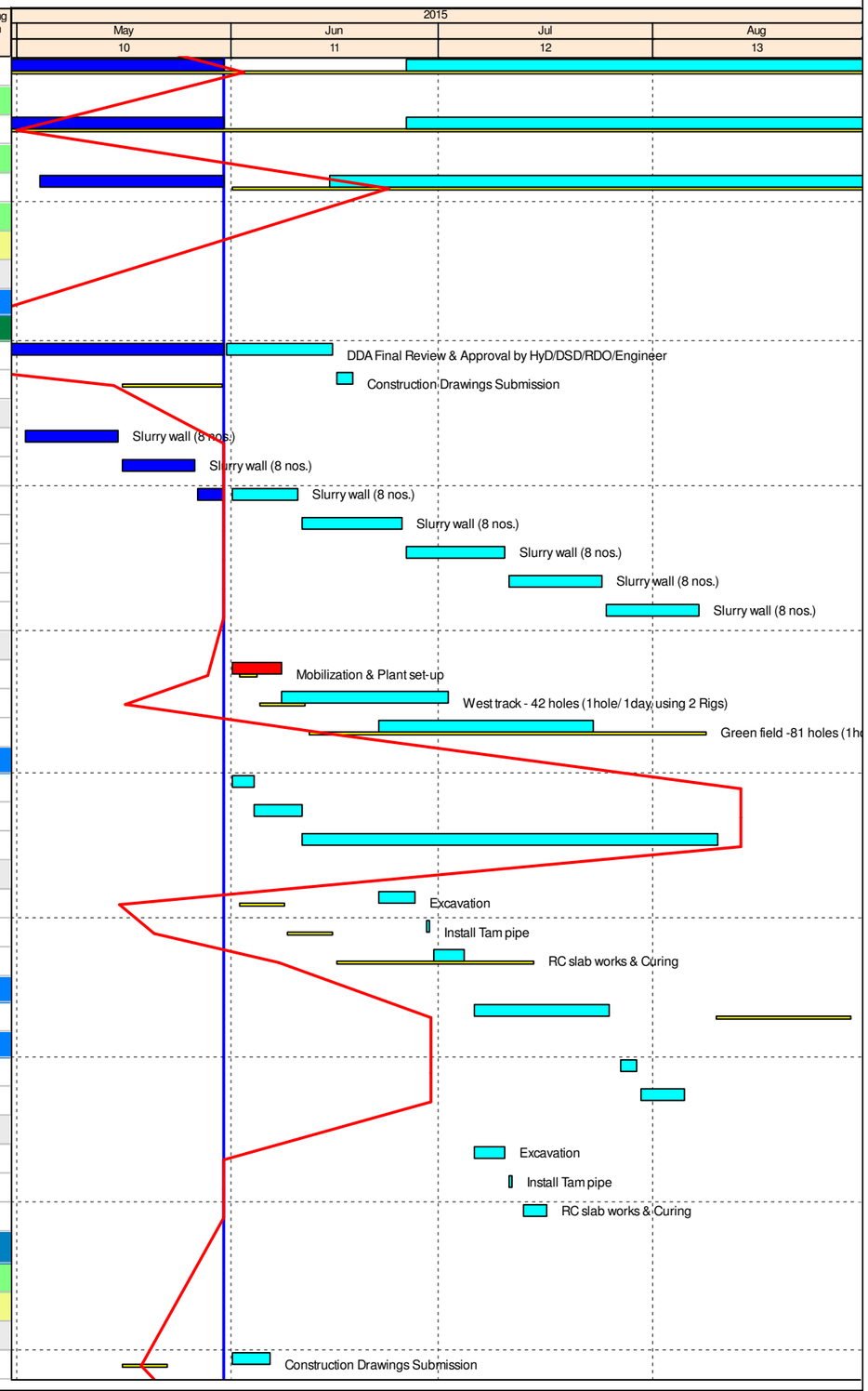
3 Month Rolling Programme (Data Date: 31-May-15)

1128

Date	Revision	Checked	Approved
31-May-15	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration
01128.CCD00030	TBM (Slurry) Manufacture & Delivery to Site	259	05-Mar-15 A	13-Jan-16	22%	166
TBM (VD) Procurement, Manufacture & Delivery						
01128.CCD00033	TBM (VD) Manufacture & Delivery to Site	352	05-Mar-15 A	18-Jun-16	7%	292
Pre-cast Segment Fabrication						
01128.CCD00042	Segment Mould Fabrication	102	04-May-15 A	26-Sep-15	5%	88
Associated Works						
Grouting - Wan Chai Sport Ground (Eastern & Western Running Tracks)						
Design Submission						
Permanent Concrete Slab						
DDA						
01128.DDS01360	DDA Final Review & Approval by HyD/DSD/RDO/Engineer	28	26-Mar-15 A	15-Jun-15	50%	16
01128.DDS01370	Construction Drawings Submission	3	16-Jun-15	18-Jun-15	0%	3
1123 & 1128 Interface						
01128.DDS01600	Slurry wall (8 nos.)	12	02-May-15 A	15-May-15 A	100%	0
01128.DDS01610	Slurry wall (8 nos.)	12	16-May-15 A	26-May-15 A	100%	0
01128.DDS01620	Slurry wall (8 nos.)	12	27-May-15 A	10-Jun-15	10%	9
01128.DDS01630	Slurry wall (8 nos.)	12	11-Jun-15	25-Jun-15	0%	12
01128.DDS01640	Slurry wall (8 nos.)	12	26-Jun-15	10-Jul-15	0%	12
01128.DDS01650	Slurry wall (8 nos.)	12	11-Jul-15	24-Jul-15	0%	12
01128.DDS01660	Slurry wall (8 nos.)	12	25-Jul-15	07-Aug-15	0%	12
Void filling						
01128.CCD00720	Mobilization & Plant set-up	6	01-Jun-15*	08-Jun-15	0%	6
01128.CCD00730	West track - 42 holes (1hole/ 1day, using 2 Rigs)	18	08-Jun-15	02-Jul-15	0%	18
01128.CCD00740	Green field -81 holes (1hole/ 1day, using 3 Rigs)	25	22-Jun-15	23-Jul-15	0%	25
2016 Jun - Aug (Stage 2)						
01128.CCD00760	Preparation & Grass Protection works at Running Tracks/Grass Playground	3	01-Jun-15	04-Jun-15	0%	3
01128.CCD00770	Mobilization & Plant set-up	6	04-Jun-15	11-Jun-15	0%	6
01128.CCD00780	RC slab (1m THK.) with reserve pipe	48	11-Jun-15	10-Aug-15	0%	48
East Track						
01128.CCD00800	Excavation	5	22-Jun-15	27-Jun-15	0%	5
01128.CCD00810	Install Tam pipe	1	29-Jun-15	29-Jun-15	0%	1
01128.CCD00820	RC slab works & Curing	4	30-Jun-15	04-Jul-15	0%	4
2015 Jun - Aug (Stage 1)						
01128.CCD00830	Reinstatement & Resurface Athletic layer (0.435m THK.)	18	06-Jul-15	25-Jul-15	0%	18
2016 Jun - Aug (Stage 2)						
01128.CCD00840	Preparation & Grass Protection works at Running Tracks/Grass Playground	3	27-Jul-15	29-Jul-15	0%	3
01128.CCD00850	Mobilization & Plant set-up	6	30-Jul-15	05-Aug-15	0%	6
West track						
01128.CCD00964	Excavation	5	06-Jul-15	10-Jul-15	0%	5
01128.CCD00974	Install Tam pipe	1	11-Jul-15	11-Jul-15	0%	1
01128.CCD00984	RC slab works & Curing	4	13-Jul-15	16-Jul-15	0%	4
Cost Centre E - Tunnel Boring Machine Launching Shaft (FPP)						
Design Submission						
Temporary ELS - Part 1 D.Wall						
DDA						
01128.EDS00110	Construction Drawings Submission	6	01-Jun-15	06-Jun-15	0%	6



Primary Baseline
Actual Work
Non Critical Activity
Critical Activity
Baseline Milestone
Milestone

11283MRP150531

SCL 1128 - SOV to Admiralty Tunnels

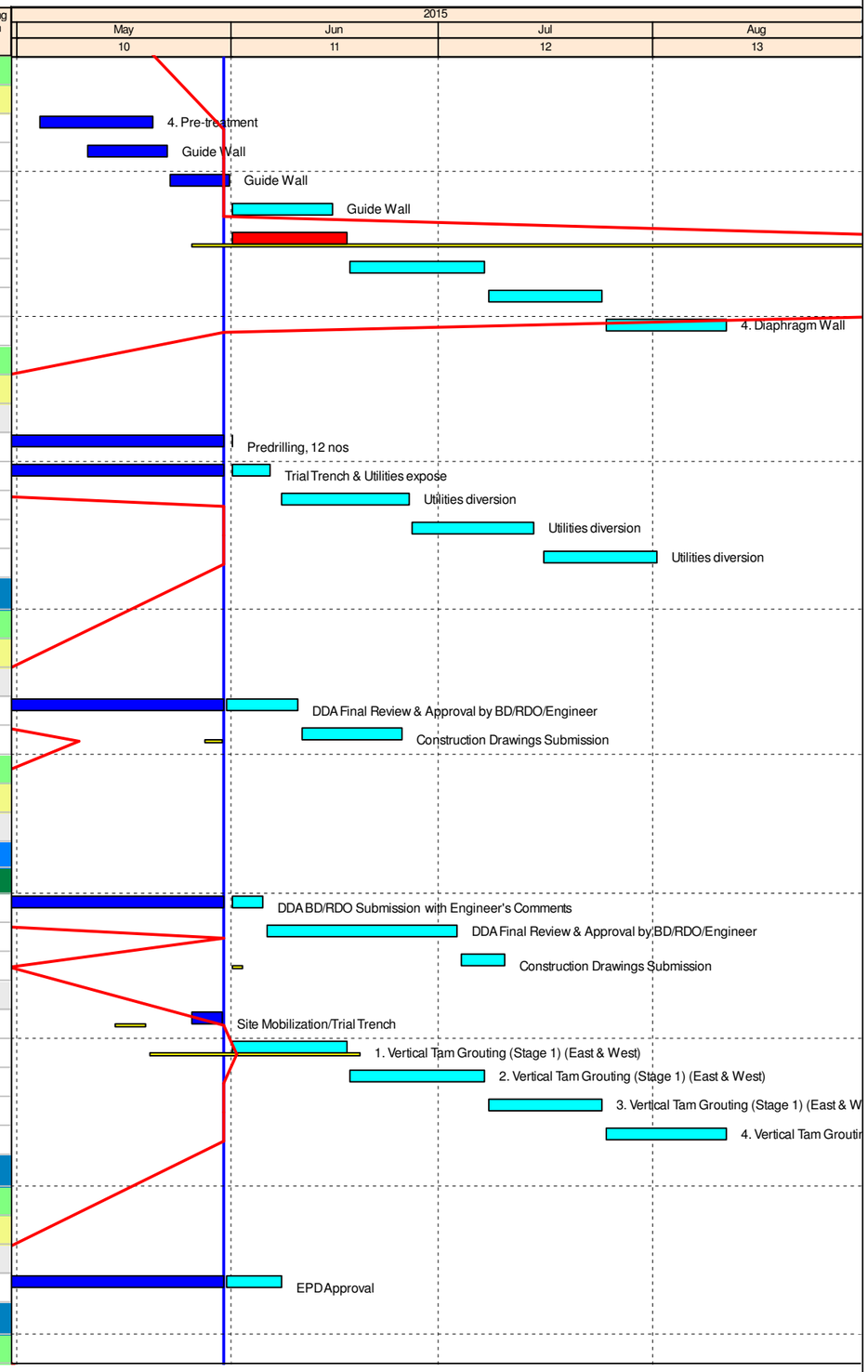
3 Month Rolling Programme (Data Data: 31-May-15)

1128

Date	Revision	Checked	Approved
31-May-15	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration
Area 1						
Cofferdam						
01128.CCE001030	4. Pre-treatment	12	04-May-15 A	20-May-15 A	100%	0
01128.CCE001000	Guide Wall	10	11-May-15 A	22-May-15 A	100%	0
01128.CCE001040	Guide Wall	12	23-May-15 A	31-May-15 A	100%	0
01128.CCE001050	Guide Wall	12	01-Jun-15	15-Jun-15	0%	12
01128.CCE00150	1. Diaphragm Wall	14	01-Jun-15*	17-Jun-15	0%	14
01128.CCE00170	2. Diaphragm Wall	14	18-Jun-15	07-Jul-15	0%	14
01128.CCE00180	3. Diaphragm Wall	14	08-Jul-15	24-Jul-15	0%	14
01128.CCE001060	4. Diaphragm Wall	14	25-Jul-15	11-Aug-15	0%	14
Area 2 & B						
Cofferdam						
Works Area W8						
01128.CCE00640	Predrilling, 12 nos	20	12-Jan-15 A	01-Jun-15	20%	0
01128.CCE00630	Trial Trench & Utilities expose	14	05-Jan-15 A	06-Jun-15	85%	6
01128.CCE001100	Utilities diversion	14	08-Jun-15	26-Jun-15	0%	14
01128.CCE001110	Utilities diversion	14	27-Jun-15	14-Jul-15	0%	14
01128.CCE001120	Utilities diversion	14	16-Jul-15	01-Aug-15	0%	14
Cost Centre F - FPP to ADM TBM Tunnels						
Design Submission						
Western TBM Tunnel Lining Design						
DDA						
01128.FDS00720	DDA Final Review & Approval by BD/RDO/Engineer	28	30-Apr-15 A	10-Jun-15	50%	11
01128.FDS00730	Construction Drawings Submission	12	11-Jun-15	25-Jun-15	0%	12
Associated Works						
Grouting - Lung King St. (TWL Crossing at SVB)						
Design Submission						
SVB Working Shaft - Temporary ELS						
DDA						
01128.FDS01510	DDA BD/RDO Submission with Engineer's Comments	6	24-Feb-15 A	05-Jun-15	60%	5
01128.FDS01560	DDA Final Review & Approval by BD/RDO/Engineer	28	06-Jun-15	03-Jul-15	0%	28
01128.FDS01570	Construction Drawings Submission	6	04-Jul-15	10-Jul-15	0%	6
Grouting - TWL Crossing at SVB						
01128.CCF00610	Site Mobilization/Trial Trench	6	26-May-15 A	30-May-15 A	100%	0
01128.CCF00620	1. Vertical Tam Grouting (Stage 1) (East & West)	14	01-Jun-15	17-Jun-15	0%	14
01128.CCF00910	2. Vertical Tam Grouting (Stage 1) (East & West)	14	18-Jun-15	07-Jul-15	0%	14
01128.CCF00920	3. Vertical Tam Grouting (Stage 1) (East & West)	14	08-Jul-15	24-Jul-15	0%	14
01128.CCF00930	4. Vertical Tam Grouting (Stage 1) (East & West)	14	25-Jul-15	11-Aug-15	0%	14
Cost Centre G - Police Officers' Club (RRIW)						
Site Preparation						
Demolition of POC						
POC - EPD Submission						
01128.CCG00070	EPD Approval	28	30-Mar-15 A	08-Jun-15	70%	8
Cost Centre H - Other RRIW Works						
Ground Investigation						



Primary Baseline
Actual Work
Non Critical Activity
Critical Activity
Baseline Milestone
Milestone

11283MRP150531

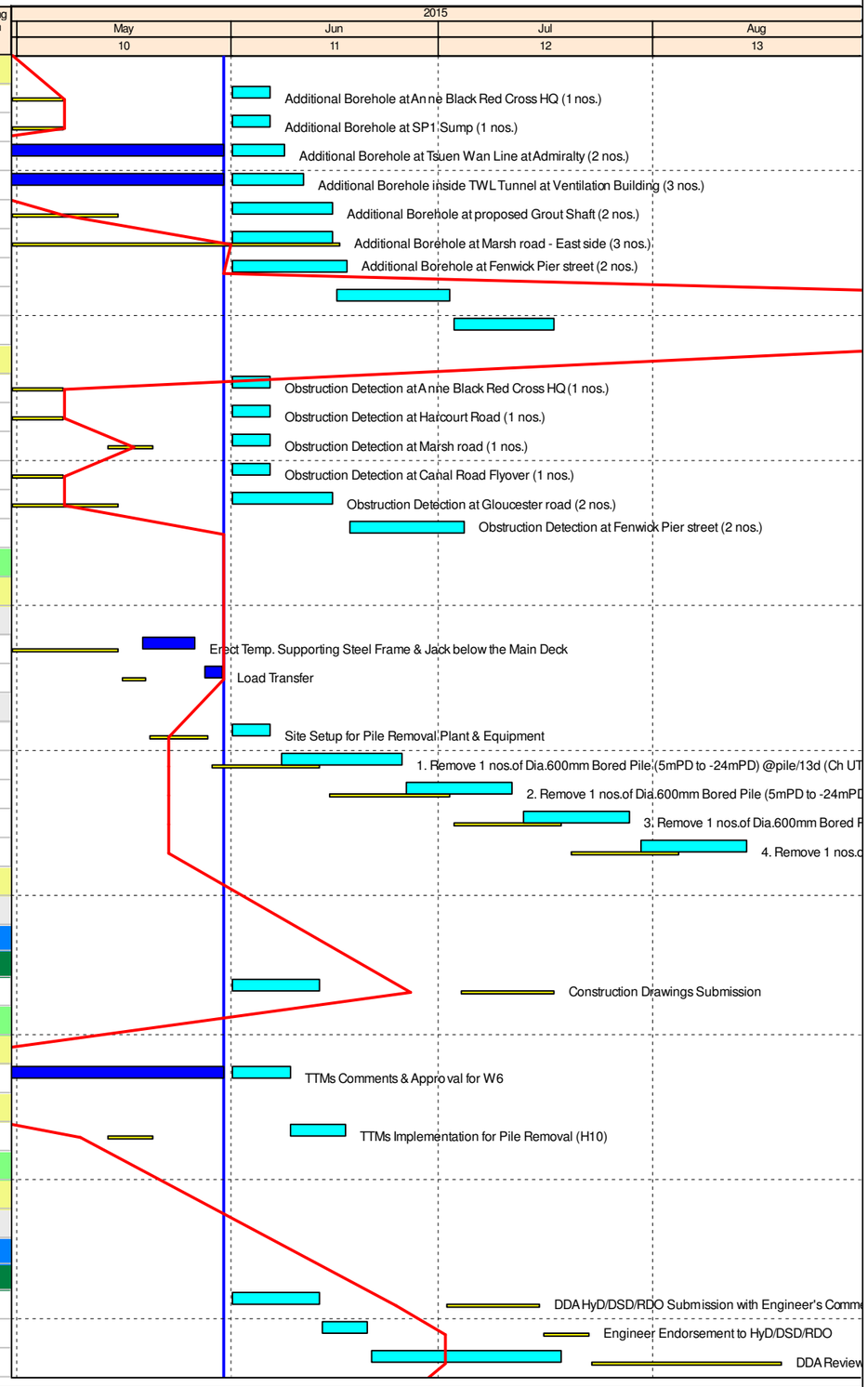
SCL 1128 - SOV to Admiralty Tunnels

3 Month Rolling Programme (Data Date: 31-May-15)

1128			
Date	Revision	Checked	Approved
31-May-15	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration
Additional Borehole						
01128.CCH03040	Additional Borehole at Anne Black Red Cross HQ (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03430	Additional Borehole at SP1 Sump (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03030	Additional Borehole at Tsuen Wan Line at Admiralty (2 nos.)	14	07-Mar-15 A	08-Jun-15	50%	7
01128.CCH03490	Additional Borehole inside TWL Tunnel at Ventilation Building (3 nos.)	12	08-Apr-15 A	11-Jun-15	30%	8
01128.CCH03470	Additional Borehole at proposed Grout Shaft (2 nos.)	12	01-Jun-15	15-Jun-15	0%	12
01128.CCH03530	Additional Borehole at Marsh road - East side (3 nos.)	12	01-Jun-15	15-Jun-15	0%	12
01128.CCH03450	Additional Borehole at Fenwick Pier street (2 nos.)	14	01-Jun-15	17-Jun-15	0%	14
01128.CCH03740	Additional Borehole at Marsh road - East side (3 nos.)	12	16-Jun-15	02-Jul-15	0%	12
01128.CCH03750	Additional Borehole at Marsh road - East side (3 nos.)	12	03-Jul-15	17-Jul-15	0%	12
Obstruction Detection						
01128.CCH03070	Obstruction Detection at Anne Black Red Cross HQ (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03440	Obstruction Detection at Harcourt Road (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03550	Obstruction Detection at Marsh road (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03590	Obstruction Detection at Canal Road Flyover (1 nos.)	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH03580	Obstruction Detection at Gloucester road (2 nos.)	12	01-Jun-15	15-Jun-15	0%	12
01128.CCH03500	Obstruction Detection at Fenwick Pier street (2 nos.)	12	18-Jun-15	04-Jul-15	0%	12
CHT Slip Road Footbridge Diversion						
Pile Removal - Percival Street Footbridge (H16)						
Load Transfer of existing Footbridge Decking & Demolition						
01128.CCH00180	Erect Temp. Supporting Steel Frame & Jack below the Main Deck	12	19-May-15 A	26-May-15 A	100%	0
01128.CCH00190	Load Transfer	3	28-May-15 A	30-May-15 A	100%	0
Removal of 9 nos.of Dia.600mm Bored Pile (5mPD to -24mPD)						
01128.CCH00260	Site Setup for Pile Removal Plant & Equipment	6	01-Jun-15	06-Jun-15	0%	6
01128.CCH00251	1. Remove 1 nos.of Dia.600mm Bored Pile (5mPD to -24mPD) @pile/13d (Ch UT 97+740)	13	08-Jun-15	25-Jun-15	0%	13
01128.CCH00252	2. Remove 1 nos.of Dia.600mm Bored Pile (5mPD to -24mPD) @pile/13d (Ch UT 97+740)	13	26-Jun-15	11-Jul-15	0%	13
01128.CCH00253	3. Remove 1 nos.of Dia.600mm Bored Pile (5mPD to -24mPD) @pile/13d (Ch UT 97+740)	13	13-Jul-15	28-Jul-15	0%	13
01128.CCH00254	4. Remove 1 nos.of Dia.600mm Bored Pile (5mPD to -24mPD) @pile/13d (Ch UT 97+740)	13	30-Jul-15	14-Aug-15	0%	13
Causeway/Hung Hing Flyover (Underpinning)						
Design Submission						
Temporary Sheet Pile Cofferdam						
DDA						
01128.HDS00300	Construction Drawings Submission	12	01-Jun-15	13-Jun-15	0%	12
Wan Shing St. Pile Removal Works (H10)						
TTMS Submission						
01128.CCH00950	TTMs Comments & Approval for W6	156	08-Sep-14 A	09-Jun-15	95%	8
TTMS Works						
01128.CCH00960	TTMs Implementation for Pile Removal (H10)	6	09-Jun-15	17-Jun-15	0%	6
TARG (Pile Removal: D03, H13, D04 & Trunk Sewers)						
Canal Rd. Flyover (H13) - Pile Removal & Underpining (Alternative scheme - 16nos. Pre-bored H-pile)						
Design Submission						
Temporary Steel Frame to Support the Jacks						
DDA						
01128.HDS00750	DDA HyD/DSD/RDO Submission with Engineer's Comments	12	01-Jun-15	13-Jun-15	0%	12
01128.HDS00760	Engineer Endorsement to HyD/DSD/RDO	7	14-Jun-15	20-Jun-15	0%	7
01128.HDS00770	DDA Review & Comments by HyD/DSD/RDO	28	21-Jun-15	18-Jul-15	0%	28



Primary Baseline
Actual Work
Non Critical Activity
Critical Activity
Baseline Milestone
Milestone

11283MRP150531

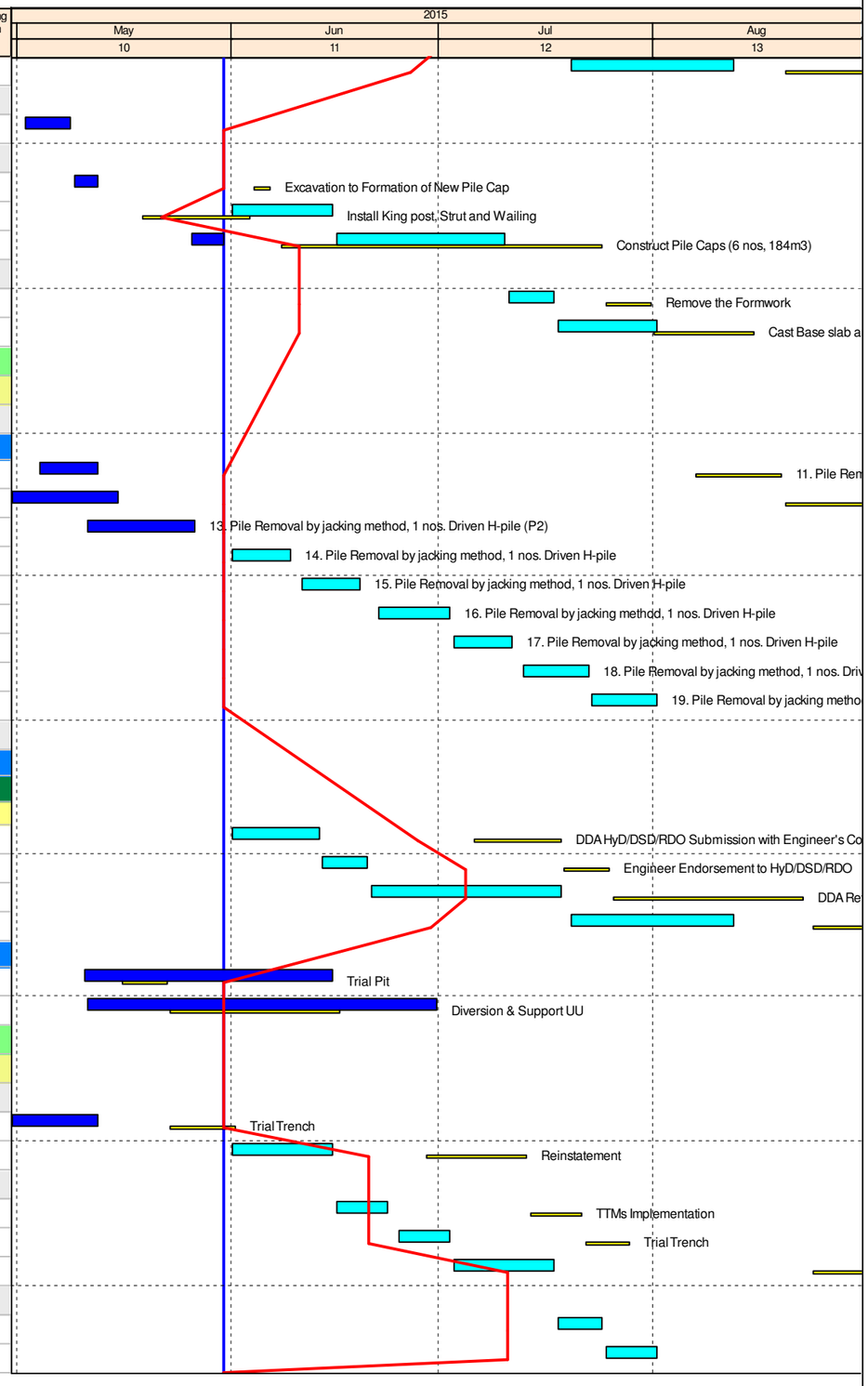
SCL 1128 - SOV to Admiralty Tunnels

3 Month Rolling Programme (Data Data: 31-May-15)

1128			
Date	Revision	Checked	Approved
31-May-15	1128 - 3MRP		

DRAGAGES - BOUYGUES JOINT VENTURE

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete	Remaining Duration
01128.HDS00780	DDA Final Submission with HyD/DSD/RDO's Comments with ICE if required	21	20-Jul-15	12-Aug-15	0%	21
Stage 1 - ELS						
01128.CCH03780	Excavation to +1.0mPD (1026m3, 150m3/d) part 2)	7	02-May-15 A	08-May-15 A	100%	0
Stage 2						
01128.CCH01250	Excavation to Formation of New Pile Cap	3	09-May-15 A	12-May-15 A	100%	0
01128.CCH01241	Install King post, Strut and Wailing	12	01-Jun-15	15-Jun-15	0%	12
01128.CCH01260	Construct Pile Caps (6 nos, 184m3)	36	26-May-15 A	10-Jul-15	5%	19
Stage 3						
01128.CCH01300	Remove the Formwork	5	11-Jul-15	17-Jul-15	0%	5
01128.CCH01310	Cast Base slab and Install Struct on base slab	12	18-Jul-15	01-Aug-15	0%	12
DSD Wan Chai West Sewage Screening Plant (B13), Lung King St. Box Culvert (D01) & Fleet Arcade (B11)						
Fenwick Pier Street						
Pile Removal - DSD Wan Chai West Sewage Screening Plant (B13)						
Stage 2 Pile Removal						
01128.CCH03420	11. Pile Removal by jacking method, 1 nos. Driven H-pile (P17)	8	04-May-15 A	12-May-15 A	100%	0
01128.CCH01980	12. Pile Removal by jacking method, 1 nos. Driven H-pile (P6)	8	30-Apr-15 A	15-May-15 A	100%	0
01128.CCH03980	13. Pile Removal by jacking method, 1 nos. Driven H-pile (P2)	8	11-May-15 A	26-May-15 A	100%	0
01128.CCH03990	14. Pile Removal by jacking method, 1 nos. Driven H-pile	8	01-Jun-15	09-Jun-15	0%	8
01128.CCH04000	15. Pile Removal by jacking method, 1 nos. Driven H-pile	8	11-Jun-15	19-Jun-15	0%	8
01128.CCH04010	16. Pile Removal by jacking method, 1 nos. Driven H-pile	8	22-Jun-15	02-Jul-15	0%	8
01128.CCH04020	17. Pile Removal by jacking method, 1 nos. Driven H-pile	8	03-Jul-15	11-Jul-15	0%	8
01128.CCH04030	18. Pile Removal by jacking method, 1 nos. Driven H-pile	8	13-Jul-15	22-Jul-15	0%	8
01128.CCH04040	19. Pile Removal by jacking method, 1 nos. Driven H-pile	8	23-Jul-15	01-Aug-15	0%	8
Pile Removal - Lung King St. Box Culvert (D01) & Fleet Arcade (B11)						
Design Submission						
Lung King St. Box Culvert - Temporary ELS						
DDA						
01128.HDS01430	DDA HyD/DSD/RDO Submission with Engineer's Comments	12	01-Jun-15	13-Jun-15	0%	12
01128.HDS01440	Engineer Endorsement to HyD/DSD/RDO	7	14-Jun-15	20-Jun-15	0%	7
01128.HDS01450	DDA Review & Comments by HyD/DSD/RDO	28	21-Jun-15	18-Jul-15	0%	28
01128.HDS01460	DDA Final Submission with HyD/DSD/RDO's Comments with ICE if required	21	20-Jul-15	12-Aug-15	0%	21
Stage 1 - 2015 (Wet Season) Preparation Works for Box Culvert & Pile Removal for Fleet Arcade						
01128.CCH02040	Trial Pit	12	11-May-15 A	15-Jun-15 A	100%	0
01128.CCH02050	Diversion & Support UU	14	11-May-15 A	30-Jun-15 A	100%	0
Works at Marsh Road (Left-in Sheet piles)						
Works at Marsh Rd. (Left-in piles)						
Stage 1						
01128.CCH02480	Trial Trench	6	30-Apr-15 A	12-May-15 A	100%	0
01128.CCH02500	Reinstatement	12	01-Jun-15	15-Jun-15	0%	12
Stage 2						
01128.CCH02510	TTMs Implementation	6	16-Jun-15	23-Jun-15	0%	6
01128.CCH02520	Trial Trench	6	25-Jun-15	02-Jul-15	0%	6
01128.CCH02540	Reinstatement	12	03-Jul-15	17-Jul-15	0%	12
Stage 3						
01128.CCH02550	TTMs Implementation	6	18-Jul-15	24-Jul-15	0%	6
01128.CCH02560	Trial Trench	6	25-Jul-15	01-Aug-15	0%	6



Primary Baseline
Actual Work
Non Critical Activity
Critical Activity
Baseline Milestone
Milestone

11283MRP150531

SCL 1128 - SOV to Admiralty Tunnels

3 Month Rolling Programme (Data Date: 31-May-15)

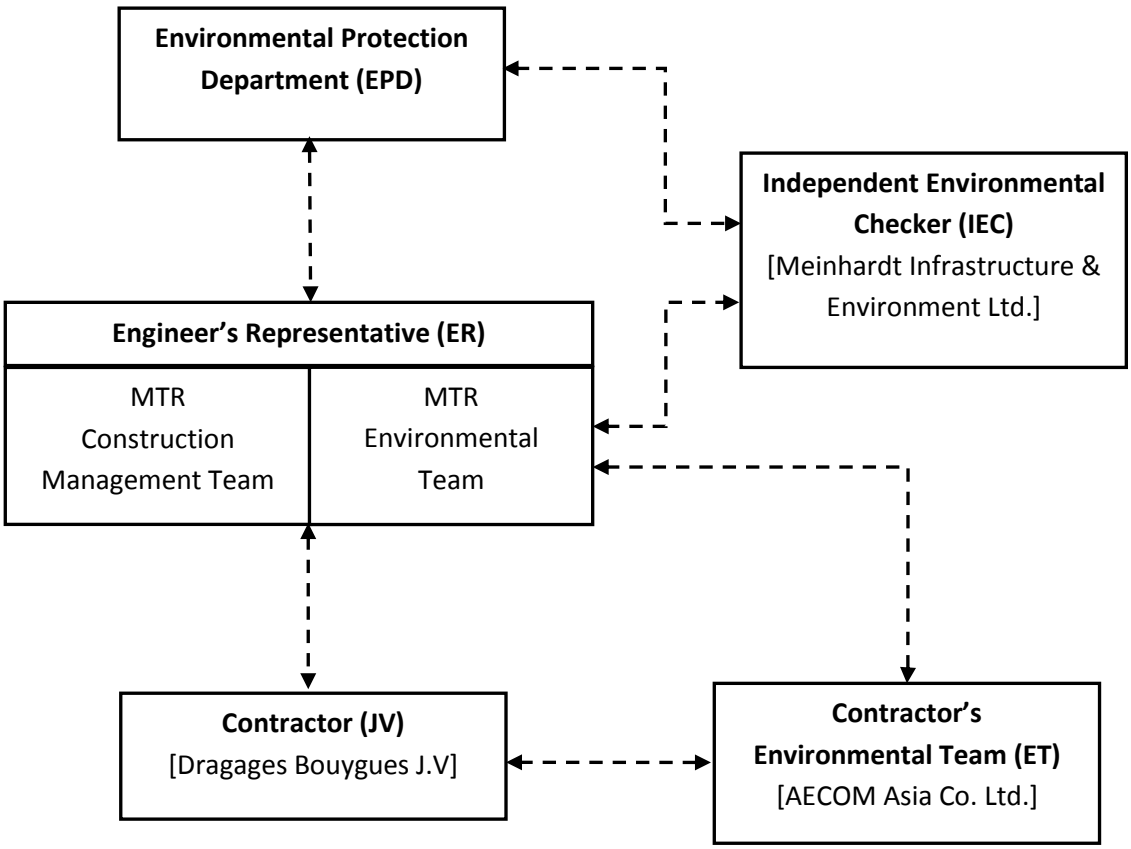
1128

Date	Revision	Checked	Approved
31-May-15	1128 - 3MRP		

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Environmental Mitigation Measures Implementation Schedule

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	N/A
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A
Air Quality						
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	Works areas	Construction phase	V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Construction Dust Impact						
Table 8.5	Barging facilities: (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. (ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.	To minimize dust impacts	Contractor	All barging points	Construction phase	N/A
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the *Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)* shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	N/A
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.	To minimize dust impacts	Contractor	Concrete Batching Plant	Construction phase	N/A
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S8.89	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission	To minimize dust impact	Contractor	All barging points	Construction phase	N/A
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise	To minimize dust impacts	Contractor	Works areas	Construction phase	 V V V V N/A V N/A V V V V V
/	***Dust suppression measures (con't)*** • De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement					V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities	To minimize construction noise impact	Contractor	Works areas	Construction phase	V N/A V V V N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	N/A V N/A V N/A N/A N/A N/A N/A N/A V V V V N/A N/A N/A N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	N/A N/A N/A N/A N/A N/A N/A N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Water Quality Impact						
Construction Phase						
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront: • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.	To minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction Phase	@ V N/A
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	@ @ @ N/A V V @ V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	Boring and Drilling Water • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities.					V
	Wheel Washing Water • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.					V
	Bentonite Slurries • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area.					N/A
	• If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS.					N/A
	Water for Testing & Sterilization of Water Retaining Structures and Water Pipes • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains.					N/A
	• Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable.					N/A
	Acid Cleaning, Etching and Pickling Wastewater • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.					N/A
	Wastewater from Site Facilities • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis.					N/A
	• Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass.					N/A
	• Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.					N/A
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	N/A
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	To control site run-off generated from any potential contaminated works areas.	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.252	The following good site practices shall be adopted for the proposed barging points: • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash • all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation	To minimize water quality impacts generated from the barging points.	Contractor	Barging points	Construction Phase	N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A N/A N/A
Waste Management Implications						
Construction Phase						
S12.75	***Good Site Practices and Waste Reduction Measures*** • Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; • Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Separation of chemical wastes for special handling and appropriate treatment.	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V N/A N/A N/A
S12.76	***Good Site Practices and Waste Reduction Measures (con’t)*** • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A @ N/A @ V V
S12.77	***Good Site Practices and Waste Reduction Measures (con’t)*** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.					
S12.78	***Good Site Practices and Waste Reduction Measures (con't)*** C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A
S12.80	***Storage, Collection and Transportation of Waste (con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: • Remove waste in timely manner • Waste collectors shall only collect wastes prescribed by their permits • Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers • Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) • Waste shall be disposed of at licensed waste disposal facilities • Maintain records of quantities of waste generated, recycled and disposed	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A N/A N/A
S12.81	***Storage, Collection and Transportation of Waste (con't)*** • Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	***Sorting of C&D Materials*** • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. • Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V N/A
S12.88	***Sediments*** • The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance.	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S12.89	***Sediments (con't)*** • The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A
S12.91 – 12.94	***Sediments (con't)*** • Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). • In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. • In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	***Sediments (con't)*** • A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	@ @ V N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	@ N/A N/A
S12.98	***Chemical Waste Storage Area*** • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated.	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	N/A N/A N/A N/A N/A N/A
S12.99	***Chemical Waste*** • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	N/A
S12.100	***Collection and Disposal of Chemical Waste*** ***A trip-ticket system shall be operated in accordance with the Waste Disposal*** *(Chemical Waste) (General) Regulation* to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	N/A
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	@
S12.102	***General Refuse (con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	N/A
S12.103	***General Refuse (con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Land Contamination Impact						
S13.23–13.24	For construction works at sites under the current stage of site investigation (Stage 1 SI): • Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. • If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP).	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Within Project Boundary where signs of contamination is identified	During excavation works for Cut-and-Cover	N/A
S13.30	For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28)	During excavation works for Cut-and-Cover	N/A
S13.36 – 13.38	For areas inaccessible for proper site appraisal and investigation (Stage 2 SI) (i) Site 2-15 • Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation • A supplementary CAP shall then be submitted to EPD for endorsement. • A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. • Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. • No construction work shall be carried out prior to the endorsement of the RR by EPD.	To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary. To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.	Contractor	Areas unable to be accessed during Stage 1 SI (Site 2-15)	After land resumption and prior to the construction works commencement at the site	N/A
S13.39	Potential Remediation of Contaminated Soil • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation; • If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced; • Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines.	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S13. 40	In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers.	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	Identified contaminated sites	Site remediation and prior to construction phase	N/A

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
AM2	Wan Chai Sports Ground	160 $\mu g/m^3$	260 $\mu g/m^3$
AM4	Pedestrian Plaza	198 $\mu g/m^3$	260 $\mu g/m^3$

Table 2 Action and Limit Levels for Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1*	Hoi Kung Court	When one documented complaint is received	75 dB(A)

* The noise monitoring at NM1 was carried out by SCL Contract 1129. Upon the completion of their EM&A programmes, the monitoring works would be taken up by this Project.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Pedestrian Plaza	Operator:	Shum Kam Yuen
Cal. Date:	23-Mar-15	Next Due Date:	22-May-15
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	293.5	Pressure, Pa (mmHg)	763.0

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X-axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.2	2.71	1.38	48.0	48.46
13	6.1	2.49	1.27	42.0	42.40
10	4.7	2.19	1.11	35.0	35.34
7	3.5	1.89	0.96	28.0	28.27
5	2.4	1.56	0.80	22.0	22.21

By Linear Regression of Y on X

Slope , mw = **45.2874** **Intercept, bw =** **-14.6215**

Correlation Coefficient* = **0.9958**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **43.83**

Remarks:

QC Reviewer: YT Leung Signature: Date: 23-3-15

D:\HVS Calibration Certificate (Existing)\6033

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Pedestrian Plaza	Operator:	Shum Kam Yuen
Cal. Date:	22-May-15	Next Due Date:	22-Jul-15
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	296.6	Pressure, Pa (mmHg)	759.1

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.6	2.76	1.40	48.0	48.08
13	6.4	2.53	1.29	42.0	42.07
10	4.7	2.17	1.10	35.0	35.06
7	3.3	1.82	0.93	26.0	26.05
5	2.5	1.58	0.81	22.0	22.04

By Linear Regression of Y on X

Slope , mw = 43.8375 **Intercept, bw =** -13.8177

Correlation Coefficient* = 0.9968

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **43.10**

Remarks: _____

QC Reviewer: H W Cheung Signature: _____ Date: 5/22/15

D:\Users\luitcn\Desktop\ca

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Wanchai Sports Ground	Operator:	Leung Yiu Ting
Cal. Date:	31-Mar-15	Next Due Date:	30-Jun-15
Equipment No.:	A-001-72T	Serial No.	809

Ambient Condition			
Temperature, Ta (K)	292	Pressure, Pa (mmHg)	763.6

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.2	2.72	1.38	46.0	46.58
13	6.1	2.50	1.27	42.0	42.53
10	5.0	2.26	1.15	35.0	35.44
7	3.6	1.92	0.98	28.0	28.35
5	2.5	1.60	0.82	20.0	20.25

By Linear Regression of Y on X

Slope , mw = **46.9239** **Intercept, bw =** **-17.8939**

Correlation Coefficient* = **0.9971**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = **42.57**

Remarks:

QC Reviewer: YT Leung Signature: Date: 31-3-15

D:\HVS Calibration Certificate (Existing)\603

TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 28, 2014 Rootsmeter S/N 0438320 Ta (K) - 296
Operator Tisch Orifice I.D. - 0988 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3790	3.2	2.00
2	NA	NA	1.00	0.9720	6.4	4.00
3	NA	NA	1.00	0.8690	7.9	5.00
4	NA	NA	1.00	0.8260	8.8	5.50
5	NA	NA	1.00	0.6830	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9917	0.7191	1.4113		0.9957	0.7221	0.8874
0.9875	1.0159	1.9959		0.9915	1.0201	1.2549
0.9854	1.1339	2.2315		0.9894	1.1385	1.4030
0.9843	1.1916	2.3405		0.9883	1.1965	1.4715
0.9790	1.4333	2.8227		0.9829	1.4392	1.7747
Qstd slope (m) =		1.97518		Qa slope (m) =		1.23683
intercept (b) =		-0.01001		intercept (b) =		-0.00630
coefficient (r) =		0.99998		coefficient (r) =		0.99998
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Impact Environmental Monitoring Schedule for May 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-May	2-May
3-May	4-May	5-May	6-May	7-May	8-May	9-May
			Air Quality			
10-May	11-May	12-May	13-May	14-May	15-May	16-May
		Air Quality				
17-May	18-May	19-May	20-May	21-May	22-May	23-May
	Air Quality					Air Quality
24-May	25-May	26-May	27-May	28-May	29-May	30-May
					Air Quality	
31-May						

Air Quality Monitoring Station

AM2	Wan Chai Sports Ground
AM4	Pedestrian Plaza

Monitoring Frequency

24-hr TSP	Once every 6 days

Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for June 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun
				Air Quality		
7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
			Air Quality			
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun
		Air Quality				
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
	Air Quality				Air Quality	
28-Jun	29-Jun	30-Jun				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for July 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jul	2-Jul	3-Jul	4-Jul
				Air Quality		
5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
			Air Quality			
12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
		Air Quality				
19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	Air Quality					Air Quality
26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	
					Air Quality	

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM4 Pedestrian Plaza

Monitoring Frequency

24-hr TSP Once every 6 days

Shatin to Central Link Contract 1128 - South Ventilation Building to Admiralty Tunnels
Tentative Impact Environmental Monitoring Schedule for August 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
				Air Quality		
9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
			Air Quality			
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
		Air Quality				
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
	Air Quality					Air Quality
30-Aug	31-Aug					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station
AM2 Wan Chai Sports Ground
AM4 Pedestrian Plaza

Monitoring Frequency
24-hr TSP Once every 6 days

APPENDIX G

Air Quality Monitoring Results and their Graphical Presentations

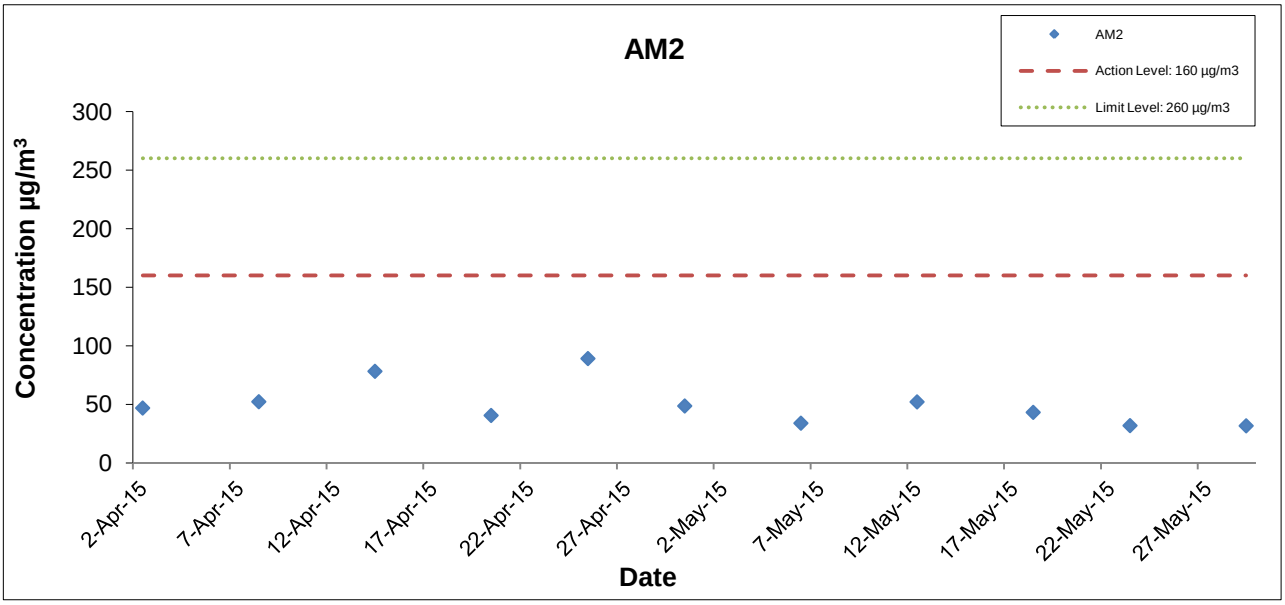
Appendix G
Air Quality Monitoring Results

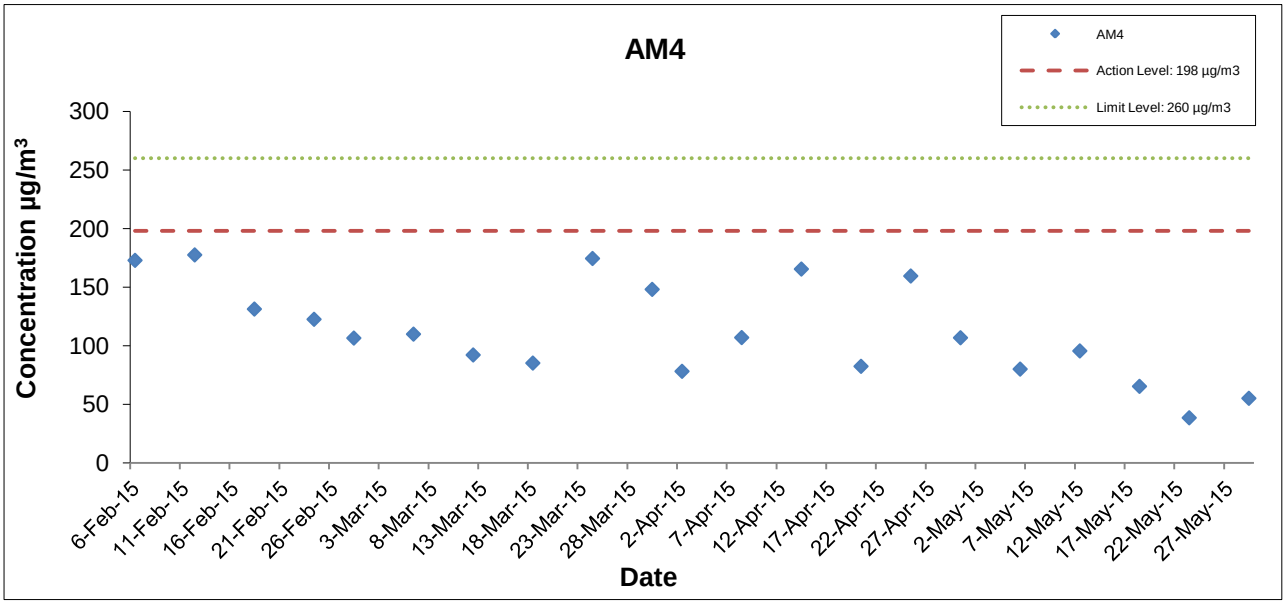
24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
6-May-15	0:00	7-May-15	0:00	Fine	26.8	1008.5	1.27	1.27	1.27	1833.1	2.7050	2.8517	0.1467	17625.00	17649.00	24.00	80.0
12-May-15	0:00	13-May-15	0:00	Fine	25.7	1012.2	1.27	1.27	1.27	1833.1	2.8669	3.0420	0.1751	17649.00	17673.00	24.00	95.5
18-May-15	0:00	19-May-15	0:00	Fine	28.2	1007.9	1.27	1.27	1.27	1833.1	2.7218	2.8415	0.1197	17673.00	17697.00	24.00	65.3
23-May-15	0:00	24-May-15	0:00	Rainy	24.8	1006.2	1.27	1.27	1.27	1833.1	2.8822	2.9527	0.0705	17697.00	17721.00	24.00	38.5
29-May-15	0:00	30-May-15	0:00	Cloudy	30.3	1006.5	1.27	1.27	1.27	1833.1	2.7100	2.8110	0.1010	17601.00	17625.00	24.00	55.1
																Average	**66.9**
																Minimum	**38.5**
																Maximum	**95.5**

24-hour TSP Monitoring Results at Station AM2 (Wan Chai Sports Ground)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
6-May-15	0:00	7-May-15	0:00	Fine	26.8	1008.5	1.26	1.26	1.26	1818.7	2.7043	2.7662	0.0619	16986.06	17010.06	24.00	34.0
12-May-15	0:00	13-May-15	0:00	Fine	25.7	1012.2	1.26	1.26	1.26	1818.7	2.8632	2.9581	0.0949	17010.06	17034.06	24.00	52.2
18-May-15	0:00	19-May-15	0:00	Fine	28.2	1007.9	1.26	1.26	1.26	1818.7	2.7006	2.7793	0.0787	17034.06	17058.06	24.00	43.3
23-May-15	0:00	24-May-15	0:00	Rainy	24.8	1006.2	1.26	1.26	1.26	1818.7	2.8881	2.9462	0.0581	17058.06	17082.06	24.00	31.9
29-May-15	0:00	30-May-15	0:00	Cloudy	30.3	1006.5	1.26	1.26	1.26	1818.7	2.7102	2.7680	0.0578	17082.06	17106.06	24.00	31.8
																Average	**38.6**
																Minimum	**31.8**
																Maximum	**52.2**





Shatin Central Link Contract No. 1128
South Ventilation Building to Admiralty Tunnels

AECOM

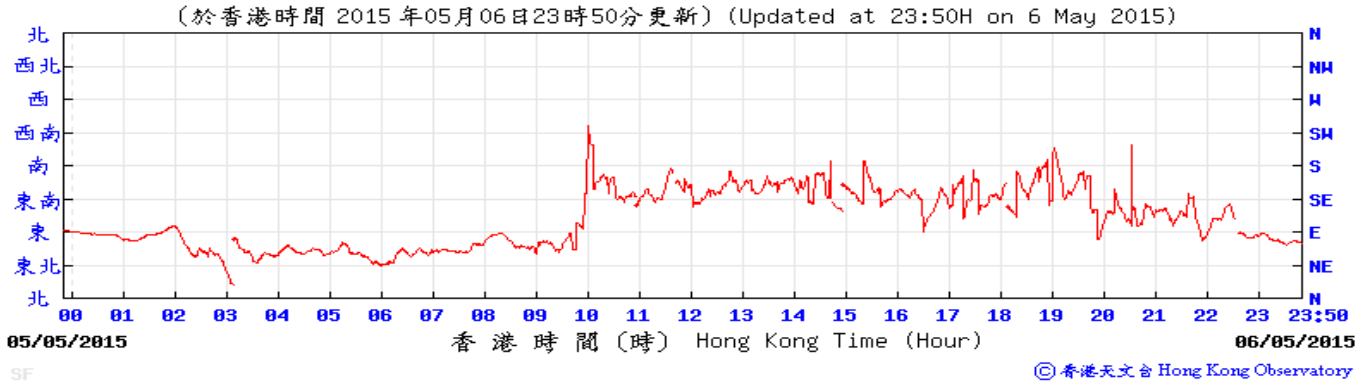
Graphical Presentation of Impact 24-hr TSP Monitoring Results

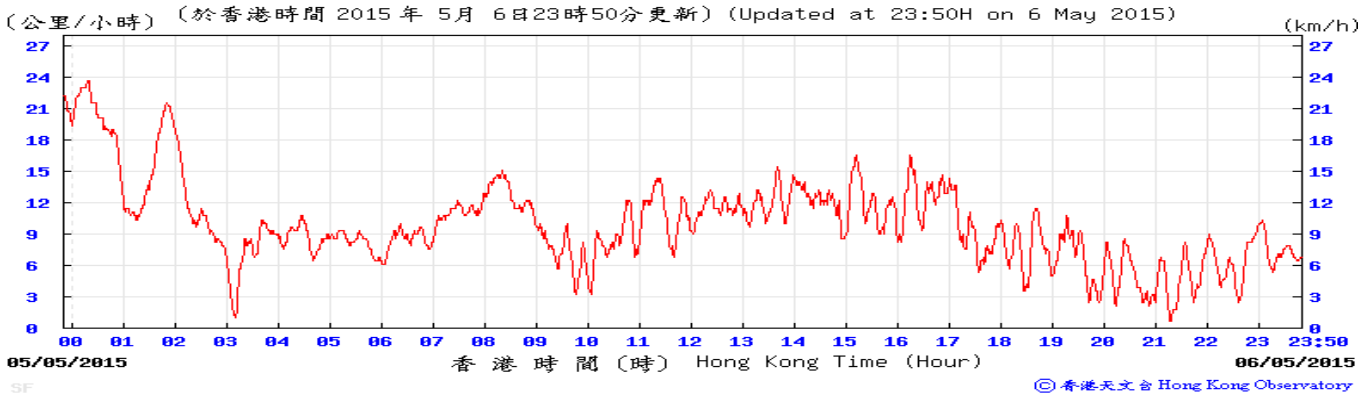
Date: June 2015

Appendix G

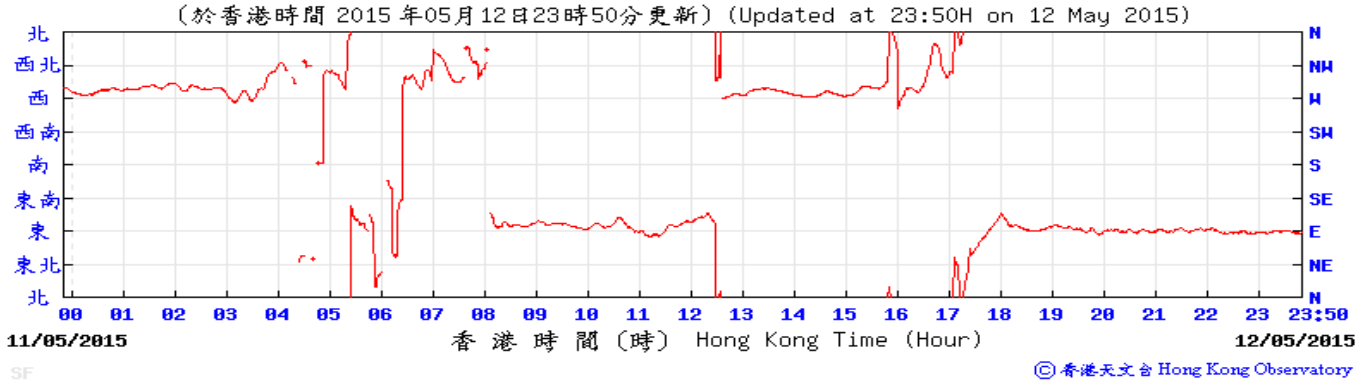
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, May 2015

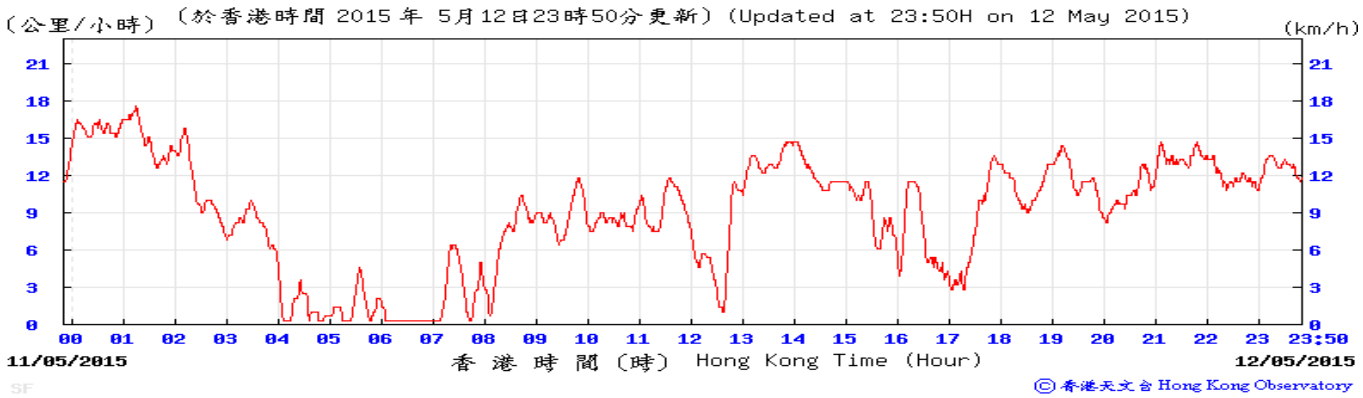
6-May-15





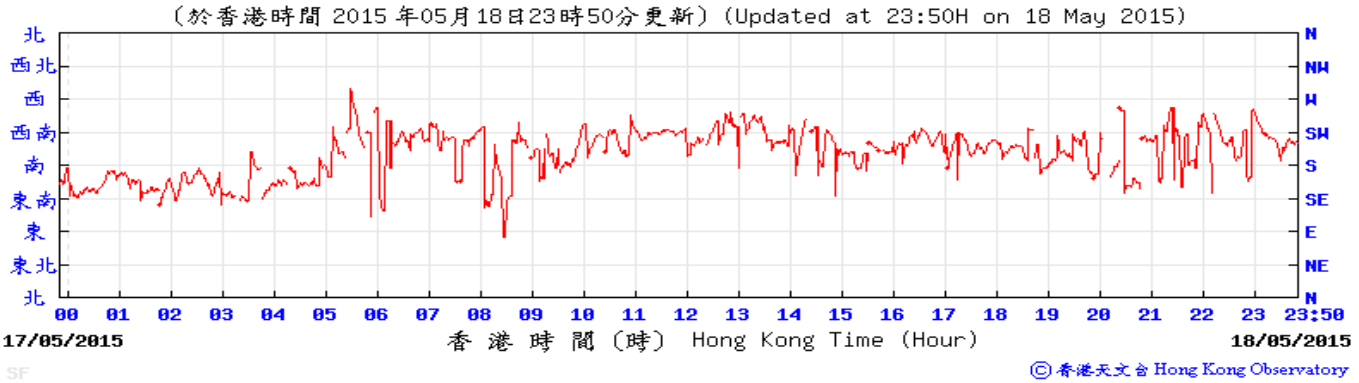
12-May-15

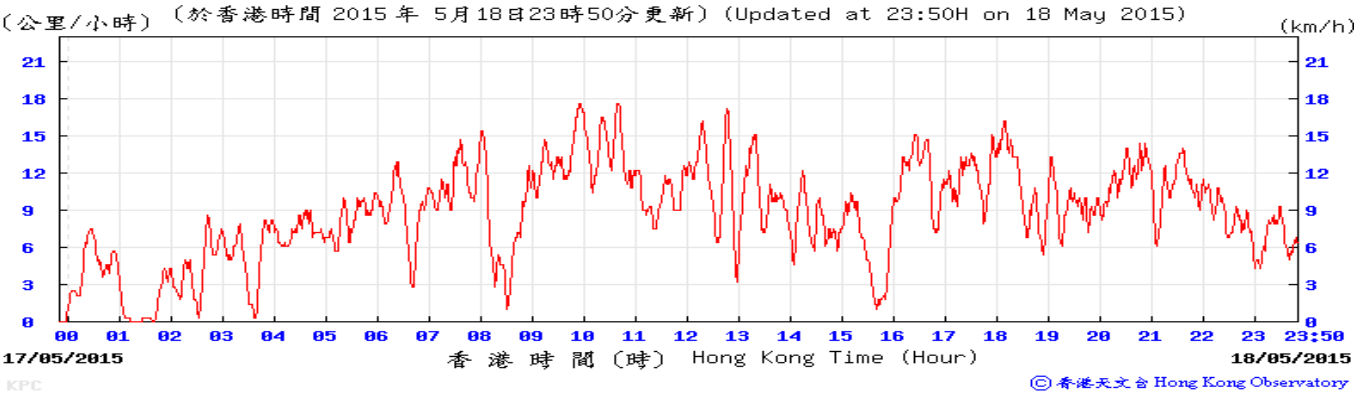




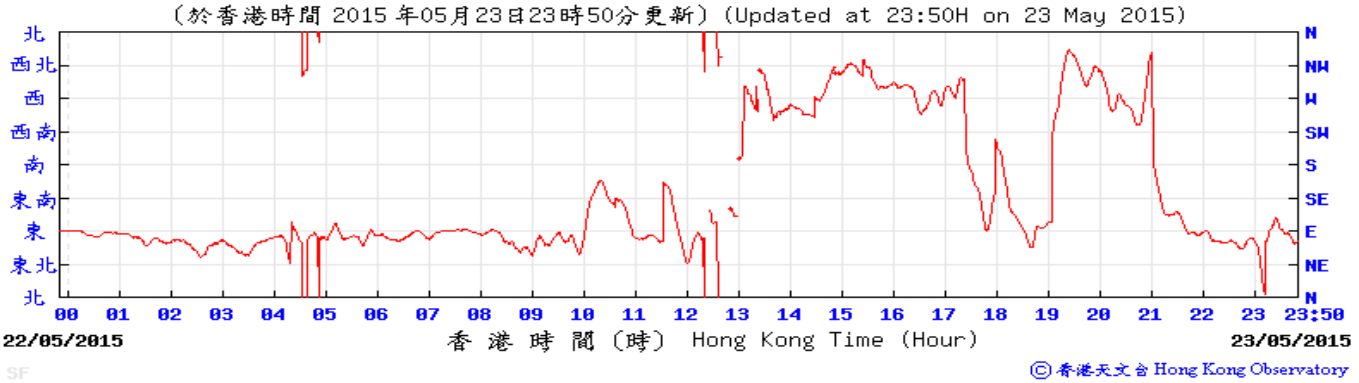
Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, May 2015

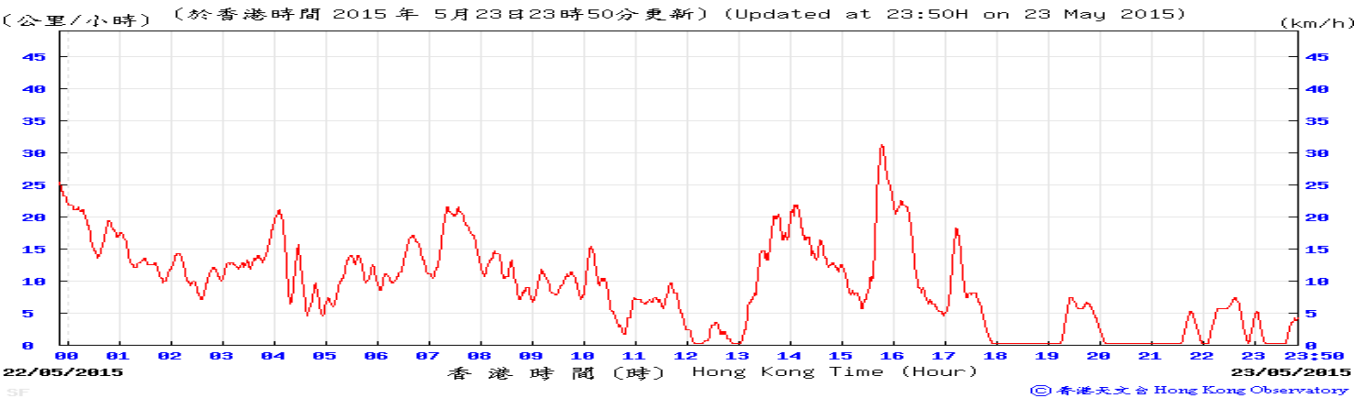
18-May-15





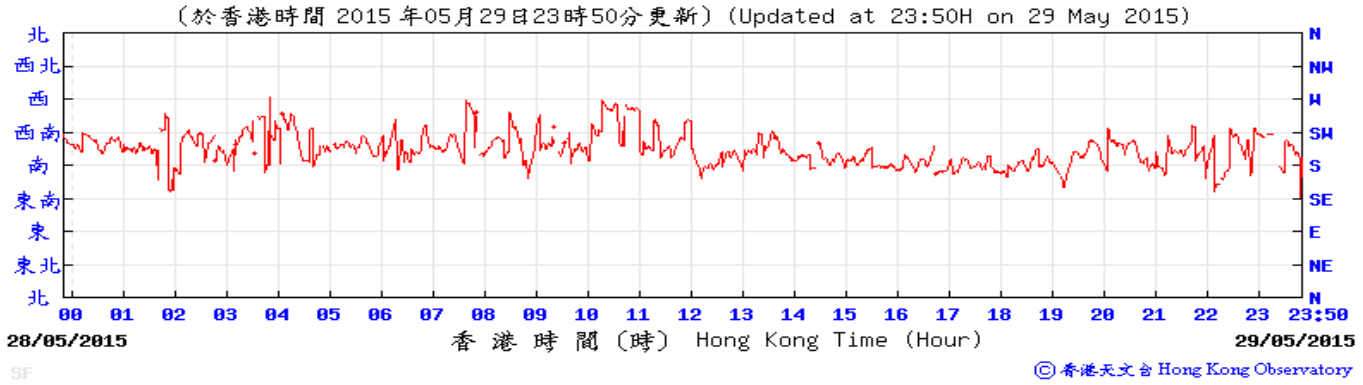
23-May-15

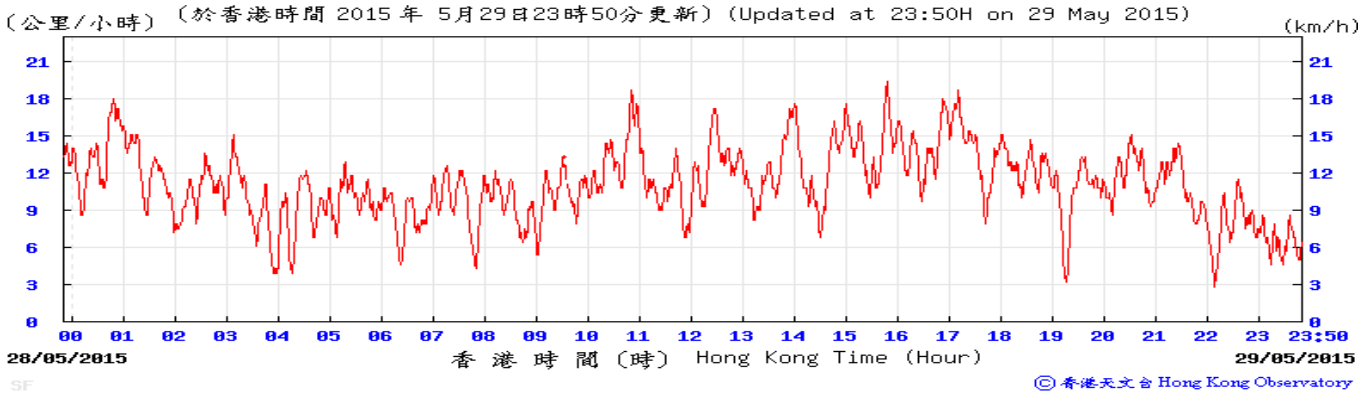




Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, May 2015

29-May-15





APPENDIX H

Event Action Plan

Appendix H Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
ACTION LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

Appendix H Event Action Plan

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix H Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX I

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix I

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX J

Waste Flow Table

SCL Contract 1128

Appendix J - Monthly Summary C&D Material Flow Table

Latest Programme for Generation & Import of Materials in each Reporting Period	Quantity for off-site disposal of Inert C&D materials (m^3)						Quantity for off-site disposal of Non-inert C&D materials					
	Inert C&D material (m^3)						Metals (kg)	Paper / Cardboard (kg)	Plastics (kg)	Chemical Waste (kg)	General Waste (m^3)	Sediment (m^3)
	CWPFBP(1)	TKO137FB(2)	TKO137SF(3)	TM38FB	^Other Site	**Total (m^3)**	Total	Total	Total	Total	Total	Total
2015/01 (Actual)	0	1,499.0	0	0.0	0	1,499.0	0	0	0	0	5.1	0
2015/02 (Actual)	0	171.0	0	0.0	0	171.0	0	0	0	0	12.8	0
2015/03 (Actual)	0	1,553.1	0	45.9	0	1,599.0	0	0	0	0	7.5	0
2015/04 (Actual)	0	2,224.0	0	0.0	0	2,224.0	0	0	0	0	10.5	0
2015/05 (Actual)	***0***	***4,496.7***	***0***	***3.7***	***0***	***4,500.4***	***0***	***0***	***0***	***0***	***11.3***	0
2015/06	-	-	-	-	-	-	-	-	-	-	-	-
2015 Sub-total	**0**	**9,943.8**	**0**	**-**	**0**	**9,993.4**	**0**	**0**	**0**	**0**	**47.2**	**0**
2015/07	-	-	-	-	-	-	-	-	-	-	-	-
2015/08	-	-	-	-	-	-	-	-	-	-	-	-
2015/09	-	-	-	-	-	-	-	-	-	-	-	-
2015/10	-	-	-	-	-	-	-	-	-	-	-	-
2015/11	-	-	-	-	-	-	-	-	-	-	-	-
2015/12	-	-	-	-	-	-	-	-	-	-	-	-
2015 Total	**0**	**9,943.8**	**0**	**49.6**	**0**	**9,993.4**	**0**	**0**	**0**	**0**	**47.2**	**0**

Remark: ***Assume the density is 2 tonnes per cubic metre**
^Required to be approved by EPD and MTR

1 **CWPFBP** **Chai Wan Public Fill Barging Point**
2 **TKO137FB** **Fill Bank at Tseung Kwan O Area 137**
3 **TM38FB** **Fill Bank at Tuen Mun**
4 **TKO137SF** **Sorting Facilities at Tseung Kwan O Area 137**

Appendix D

Monthly EM&A Report for May 2015 – SCL Works Contract 1121 NSL Cross Harbour Tunnels

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 3

[Period from 1 to 31 May 2015]

Works Contract 1121 – NSL Cross Harbour Tunnels

(June 2015)

Certified by: _____Dr. Priscilla Choy_____

Position: ___Environmental Team Leader___

Date: _____9th June 2015__

Penta Ocean – China State Joint Venture

Shatin to Central Link – Contract 1121 NSL Cross Harbour Tunnels

Monthly Environmental Monitoring and Audit Report for May 2015

(version 1.0)

Certified By

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LTD
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

+TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 3rd monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1121 – NSL Cross Harbour Tunnels.** This report documents the findings of EM&A Works conducted from 1 to 31 May 2015.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
   - Marine Piling Works in Hung Hom Landfall;
   - Advance Dredging Works near Hung Hom Landfall;
   - Trial Trenching Works in Victoria Harbour;
   - Demolition/Removal of Existing Fender Piles;
   - Site Formation for Shek O Casting Basin;
   - Construction of Site Office in Shek O;
   - Construction of Shek O Concrete Batching Plant; and
   - Construction of Dock Gates for Shek O Casting Basin.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:

Regular Water Quality Monitoring

- Water Quality Monitoring at each monitoring station (Shek O Casting Basin)(1) 0 times
- Water Quality Monitoring at each monitoring station (Victoria Harbour) 13 times

Remarks:
(1) Removal of earth bunds at Shek O Casting Basin under this Project has not yet commenced in the reporting month.

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 11 and 29 May 2015. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 4, 11, 18 and 29 May 2015. The representative of the

IEC joined the site inspection on 18 May 2015. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

7. No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded during the reporting period.

8. No non-compliance event was recorded during the reporting period.

9. No Project related environmental complaint and notification of summons/successful prosecutions were received in this reporting period.

Reporting Changes

10. No reporting changes in this reporting period.

Future Key Issues

11. Major site activities for the coming reporting month will include:

- Advance Dredging Works near Hung Hom Landfall;
- Construction of Marine Platform near Hung Hom Landfall;
- Demolition/Removal of Existing Fender Piles;
- Site Formation in Shek O Casting Basin;
- Construction of Site Office in Shek O;
- Construction of Dock Gates for Shek O Casting Basin;
- Construction of Shek O Barging Point;
- Construction of Shek O Concrete Batching Plant; and
- Dewatering of Shek O Casting Basin.

12. Key environmental impacts to be considered in the coming month include:

- Water quality impact in the vicinity of the marine construction activities;
- Construction dust impact from stockpile of dusty materials and unpaved works area in Shek O; and
- Management of Construction & Demolition Waste in Shek O Casting Basin.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta Ocean – China State Joint Venture (PCJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1121 – NSL Cross Harbour Tunnels (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 3rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 May 2015. The major construction works for Contract 1121 commenced on 2 March 2015.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures -** summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation.

2.3 The "Environmental Review Report – Design Changes of North Ventilation Building and Shek O Casting Basin" (ERR) was submitted to the EPD in February 2014 to identify and assess the likely environmental issues pertinent to the proposed design changes at North Ventilation (NOV) Building and Shek O Casting Basin, and to identify any additional environmental mitigation measures that may be required for compliance with environmental standards.

2.4 The "Environmental Review Report – Variation for IMT Extension" (ERR) was submitted to the EPD in February 2015 to identify and assess the likely environmental issues pertinent to the proposed alternative scheme of IMT extension. Variation of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/B) was issued by Director of Environmental Protection (DEP) on 19 March 2015.

2.5 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1121 comprises of the Permanent Works and the associated Temporary works required for the construction of the North Ventilation Building (NOV) at the Hung Hom Landfall, and construction of cut & cover tunnel and Immersed Tunnel (IMT) sections extending across the harbour from the NOV to the Causeway Bay Typhoon Shelter (CBTS). This construction contract was awarded to Penta Ocean – China State Joint Venture (PCJV) in December 2014.

General Site Description

2.6 The site layout plans for the Works Contract 1121 are shown in **Figure 1a-1b**.

Construction Programme and Activities

2.7 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

- Marine Piling Works in Hung Hom Landfall;
- Trial Trenching Works in Victoria Harbour;
- Advance Dredging Works near Hung Hom Landfall;
- Demolition/Removal of Existing Fender Piles;
- Site Formation in Shek O Casting Basin;
- Construction of Site Office in Shek O;

- Construction of Shek O Concrete Batching Plant; and
- Construction of Dock Gates for Shek O Casting Basin.

Project Organisation

2.8 The project organizational chart and contact details are shown in **Figure 2.**

Status of Environmental Licences, Notification and Permits

2.9 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-436/2012/B	19/03/2015	N/A	Valid
SP License			
Application in progress			
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD Ref no.: 384777	28/01/2015	N/A	Valid
EPD Ref no.: 384550	21/01/2015	N/A	Valid
EPD Ref no.: 384281	14/01/2015	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No. 7021499	20/01/2015	N/A	Valid
Registration of Chemical Waste Producer			
Waste Producer No. 5213-147-P3174-03	02/03/2015	N/A	Valid
Waste Producer No. 5213-213-P3172-01	09/02/2015	N/A	Valid
Waste Producer No. 5111-197-P3174-01	27/02/2015	N/A	Valid
Marine Dumping Permit			
EP/MD/15-251	13/04/2015	12/05/2015	Valid until 12 May 2015
EP/MD/15-252	13/04/2015	12/10/2015	Valid
EP/MD/16-012	13/05/2015	12/06/2015	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
Application in progress			
Construction Noise Permit (CNP)			
PP-RE0004-15	16/03/2015	15/12/2015	Valid

Permit / License No.	Valid Period		Status
	From	To	
GW-RE0272-15	01/04/2015	01/10/2015	Superseded by GW-RE0474-15 since 15 May 2015
GW-RS0316-15	24/03/2015	19/09/2015	Superseded by GW-RS0506-15 since 15 May 2015
GW-RE0335-15	02/04/2015	01/10/2015	Valid
GW-RE0474-15	15/05/2015	14/11/2015	Valid
GW-RS0506-15	15/05/2015	14/11/2015	Valid

Summary of EM&A Requirements

2.10 The EM&A programme under Works Contract 1121 requires regular dust and water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely marine water quality monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Dust Monitoring

3.1 In accordance with the EM&A Manual, the setup of the impact dust monitoring station at Harbourfront Horizon and the impact monitoring is currently carried out by the MTR Contract 1112. Upon termination of their EM&A programmes, the impact monitoring works would be taken up by this Project.

Regular Water Quality Monitoring

3.2 In accordance with the EM&A Manual and the ERR, marine water quality monitoring should be carried out during the dredging and filling operation, and IMT construction within CBTS (for Station 9 only); and throughout the construction period of removal of earth bunds at Northern and Southern gates.

3.3 Water Quality Monitoring at Station 8 and 14 is suspended as the water intakes are not in use. The statuses of the intakes will be kept in view such that once the water intakes are occupied, water quality monitoring will resume. In the presence of temporary reclamation in the Causeway Bay Typhoon Shelter (CBTS) under this Project, only Dissolved Oxygen (DO) level monitoring would be maintained at Station 8 for checking of potential odour concern.

3.4 The water quality monitoring stations and control stations of Project are shown in **Figure 3**. The co-ordinates of the monitoring stations are listed in **Table 3.1**. As shown in **Table 3.1**, the locations are classified as Impact Station and Control Station according to their functions.

Table 3.1 Water Quality Monitoring Stations

Station	Description	Coordinates	
		Easting	North
Shek O Casting Basin			
GB3	Turtle Cove Beach	841120	810280
C3	Control Station for ebb tide	841200	806210
C4	Control Station for flood tide	843330	807320
Victoria Harbour			
8	Cooling Water Intake for Excelsior Hotel and World Trade Centre / No. 27 – 63 Paterson Street	837036	816008
9	Cooling Water Intake for Windsor House	837223	816150
14	Flushing Water Intake for Kowloon Station	834477	817891
21	Cooling Water Intake for East Rail Extension	836484	817642
34	Cooling Water Intake for Metropolis	836828	817844
A	Wan Chai WSD Flushing Water Intake (Reprovisioned)(1)	836268	816045
WSD9	Tai Wan WSD Flushing Water Intake(2)	837930	818357
WSD17	Quarry Bay WSD Flushing Water Intake	839863	817077
C1	Control Station 1	833977	817442

Station	Description	Coordinates	
		Easting	North
C2	Control Station 2	841088	817223

Note:
(1) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location A (Easting: 836286, Northing: 816024) is the exact location taken from the design of reprovisioned Wan Chai Salt Water Pumping Station and Salt Water Intake Culvert. Based on actual site condition for taking water sampling, minor adjustment was made on monitoring location.
(2) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location WSD9 (Easting: 838133, Northing: 817790) as proposed in WQMP were moved closer to sensitive receiver according to the actual site condition.

Monitoring Parameter, Frequency and Programme

3.5 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL(HUH-ADM) EM&A Manual and the ERR. **Table 3.2** summarized the monitoring frequency and water quality parameters for the impact monitoring. The monitoring schedule for this reporting period is shown in **Appendix C**.

Table 3.2 Water Quality Impact Monitoring Programme

	Impact Monitoring
Monitoring Period	Victoria Harbour During the dredging and filling operation CBTS (Station 9 only) During IMT construction within CBTS Shek O Casting Basin Throughout the construction period of removal of earth bunds at Northern and Southern gates.
Monitoring Frequency(1)	3 Days in a Week, at mid-flood and mid-ebb tides
Monitoring Locations(3)	GB3, C3, C4, 8, 9, 14, 21, 34, A, WSD9, WSD17, C1 and C2
Monitoring Parameters(2)	DO, temperature, turbidity, pH, salinity and SS
Intervals between 2 Sets of Monitoring	Not less than 36 hours
Tidal Range	Individual flood and ebb tides not less than 0.5m

Notes:
1. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5 m.
2. Turbidity, DO, pH, temperature and salinity should be measured in situ whereas SS should be determined by laboratory.
3. Water Quality Monitoring at Station 8 and 14 is suspended as the water intakes are not in use.

Monitoring Equipment and Methodology

pH Measurement Instrument

3.6 The instrument should consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It should be readable to 0.1pH in a

range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 should be used for calibration of the instrument before and after use.

Dissolved Oxygen and Temperature Measuring Equipment

3.7 The Dissolved Oxygen (DO) measuring equipment should be portable and weatherproof. It should complete with cable and senor, and a DC power source. The equipment should be capable of measuring:

- a DO level in the range of 0 - 20 $mg \cdot L^{-1}$ and 0 - 200% saturation; and
- a temperature of 0 - 45 degree Celsius (°C).

3.8 It should have a membrane electrode with automatic temperature compensation complete with a cable.

3.9 Should salinity compensation not be built-in to the DO equipment, in-situ salinity should be measured to calibrate the DO measuring equipment prior to each DO measurement.

Turbidity Measurement Instrument

3.10 The turbidity measuring instrument should be a portable and weatherproof using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument).

Sampler

3.11 A water sampler is required for SS monitoring. It should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

3.12 A portable, battery-operated echo sounder should be used for the determination of water depth at each monitoring station. This unit can either be hand-held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

Salinity

3.13 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring station.

Sample Containers and Storage

3.14 Water samples for SS monitoring should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 ^{o}C without being frozen) and delivered to the laboratory and analyzed as soon as possible after collection.

Monitoring Position Equipment

3.15 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime

(RTCM) Type 16 error message "screen pop-up" facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel at the correct location before taking measurements.

Calibration of In-Situ Instruments

3.16 The pH meter, DO meter and turbidimeter shall be checked and calibrated before use. DO meter and turbidimeter shall be certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

3.17 **Table 3.3** summarizes the equipment used in the water quality monitoring program. The calibration certificates for the in-situ instruments are presented in **Appendix E**.

Table 3.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	Aquaread AP-2000-D	4
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

3.18 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment are under maintenance, calibration, etc.

Laboratory Measurement / Analysis for Marine Water

3.19 Duplicate samples from each independent sampling event are required by EPD for all parameters. Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory SS determinations, with detection limit shown in **Table 3.4**. The SS determination work shall start within 24 hours after collection of the water samples. The analyses shall follow the standard methods according to **Table 3.4** and as described in "American Public Health Association (APHA) Standard Methods for the Examination of Water and Wastewater", 19th edition, unless otherwise specified.

Table 3.4 Analytical Methods to be applied to Marine Water Quality Samples

Determinant	Standard Method	Detection Limit
Suspended Solids (mg/L)	APHA 2540 D	0.1 mg/L

3.20 Quality Control Reports as attached in **Appendix F** are available for the SS analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Action and Limit Levels

3.21 The action and limit levels for water quality monitoring are presented in **Appendix B**.

Event and Action Plan

3.22 Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in **Appendix I** shall be carried out.

Landscape and Visual

3.23 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is summarised in **Table 6.1** of Section 6.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit, EM&A Manual and the ERR. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix J**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (April 2015)	14 May 2015

5 MONITORING RESULTS

Water Quality Monitoring

5.1 13 sets of water quality monitoring were carried out at the designated monitoring stations in Victoria Harbour in this reporting period. All water quality monitoring was conducted as scheduled in the reporting month. The water quality impact monitoring schedule for this reporting period is shown in **Appendix C**.

5.2 Removal of earth bunds at Northern and Southern Gates has not yet commenced in Shek O Casting Basin. Therefore, no water quality monitoring in Shek O was carried out during this reporting period under this Project.

5.3 The monitoring results together with graphical presentations are shown in **Appendix D**.

5.4 Under consultancy agreement no. C11033B, Action and Limit Levels for water quality monitoring at the monitoring stations in **Table 3.2** were established in the baseline water quality monitoring conducted by AECOM during June and July 2014. Action and Limit Levels for water quality is summarised in **Appendix B**.

5.5 No exceedance of Action and Limit Levels of water quality was recorded during the reporting period.

Waste Management

5.6 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.1**. Details of waste management data is presented in **Appendix K**.

5.7 No inert C&D materials were generated during the reporting month. No chemical waste was collected by licensed collector during the reporting month. No plastics, metal and paper/cardboard packaging were generated during the reporting month.

5.8 9,535 m^3 (in total bulk volume) of materials - Type 1 (Category L) sediments were generated from construction activities during this reporting period. Such materials would be collected and disposed at Capping of the exhausted Confined Marine Disposal Facility at South of The Brothers (or East of Sha Chau). No contaminated materials - Type 1 (dedicated sites) and 6,583 m^3 (in total bulk volume) of Type 2 - Confined Marine Disposal (Category M) sediments were generated from construction activities during this reporting period. Such materials would be collected and disposed at Mud Pits CMP1 or CMP2 of the exhausted Confined Marine Disposal Facility at South of The Brothers (or East of Sha Chau).

Table 5.1 Quantities of Waste Generated from the Project

Reporting Month	Quantity						
	C&D Materials (inert) [a]	Sediments (in bulk volume)	C&D Materials (non-inert)[b]				
			General Refuse	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
May 2015	*0 m^3*	*16,118 m^3*	*6.53 m^3*	*0 kg*	*0 kg*	*0 kg*	*0 kg*

Notes:
(a) Inert C&D materials include soft materials, rocks and artificial hard materials to be delivered to TKO 137 and TM 38 public fill reception sites or, alternatively, receptor sites to be identified for beneficial reuse as proposed by the Contractor.
(b) Non-inert C&D materials include C&D waste which cannot be reused or recycled and has to be disposed of at North East New Territories (NENT) Landfill. It also includes steel, paper/cardboard packaging waste, plastics. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

Landscape and Visual

5.9 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 11 and 29 May 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.

6.2 Site audits were conducted on 4, 11, 18 and 29 May 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 18 May 2015. No site inspection was conducted by EPD. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.

6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	27 Apr 2015	Observation: Some spoil material observed deposited near the seafront in Shek O Casting Basin. The Contractor is reminded to provide mitigation measures to prevent washout to the basin.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 May 2015.
	11 May 2015	Observation: Silt curtain near Hung Hom Landfall observed "opened" during the dredging works. The Contractor is reminded to completely close the silt curtain during marine works.	The observation was observed to be improved/rectified by the Contractor during the audit session on 18 May 2015.
	18 May 2015	Observation: Overlapping at the opening of silt curtain near Hung Hom Landfall was not observed. The Contractor is reminded to provide the overlapping as required in the Silt Curtain Deployment Plan.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 May 2015.
Noise	--	--	--
Landscape and Visual	--	--	--
Air Quality	--	--	--
Waste / Chemical Management	27 Apr 2015	Observation: Chemical containers without secondary confinement observed in Shek O and the barge in Victoria Harbour. The Contractor is reminded to provide drip trays for chemical containers.	The observation was observed to be improved/rectified by the Contractor during the audit session on 4 May 2015.
	4, 11 May 2015	Observation: Drip tray of sufficient size should be provided to the chemical containers at the casting basin at Shek O in order to	The observation was observed to be improved/rectified by the Contractor during the

Parameters	Date	Observations and Recommendations	Follow-up
		prevent chemical spillage.	audit session on 18 May 2015.
	4 May 2015	Reminder: Oil and chemical stain on the ground at Shek O should be properly removed as chemical waste and stored in chemical waste cupboard for subsequent disposal.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 May 2015.
	4 May 2015	Reminder: Construction wastes stored in the skips near the site office at Shek O should be removed as soon as possible or else they should be covered to prevent being blown away by wind. The construction waste at the casting basin should also be properly disposed of.	The observation was observed to be improved/rectified by the Contractor during the audit session on 11 May 2015.
	11 May 2015	Reminder: Clear the stagnant rain water of the drip tray of generator-set in Shek O.	The observation was observed to be improved/rectified by the Contractor during the audit session on 18 May 2015.
	18 May 2015	Reminder: To provide a plug for hole of drip tray of generator-set in Shek O.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 May 2015.
	29 May 2015	Reminder: Perform sorting for chemical waste container from the general refuse.	Follow up action will be reported in next reporting month.
Permits/ Licenses	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

7.1 No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Advance Dredging Works near Hung Hom Landfall;
- Construction of Marine Platform near Hung Hom Landfall;
- Demolition/Removal of Existing Fender Piles;
- Site Formation in Shek O Casting Basin;
- Construction of Site Office in Shek O;
- Construction of Dock Gates for Shek O Casting Basin;
- Construction of Shek O Barging Point;
- Construction of Shek O Concrete Batching Plant; and
- Dewatering of Shek O Casting Basin.

Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Water quality impact in the vicinity of the marine construction activities;
- Construction dust impact from stockpile of dusty materials and unpaved works area in Shek O; and
- Management of Construction & Demolition Waste in Shek O Casting Basin.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular water quality monitoring at all the monitoring locations in the next reporting period is presented in **Appendix C**. The regular construction water quality monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 May 2015 in accordance with EM&A Manual and the requirement under EP.

9.2 No exceedance of the Action and Limit Levels of regular water quality monitoring was recorded at the designated monitoring stations during the reporting month.

9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.

9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.

9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality

- The "opening" of silt curtain at Hung Hom Landfall should be closed before the marine works are carried out.
- An overlapping of silt curtain at the "opening" of silt curtain at Hung Hom Landfall should be provided.

Landscape and Visual

- N/A

Noise

- N/A

Air Quality

- N/A

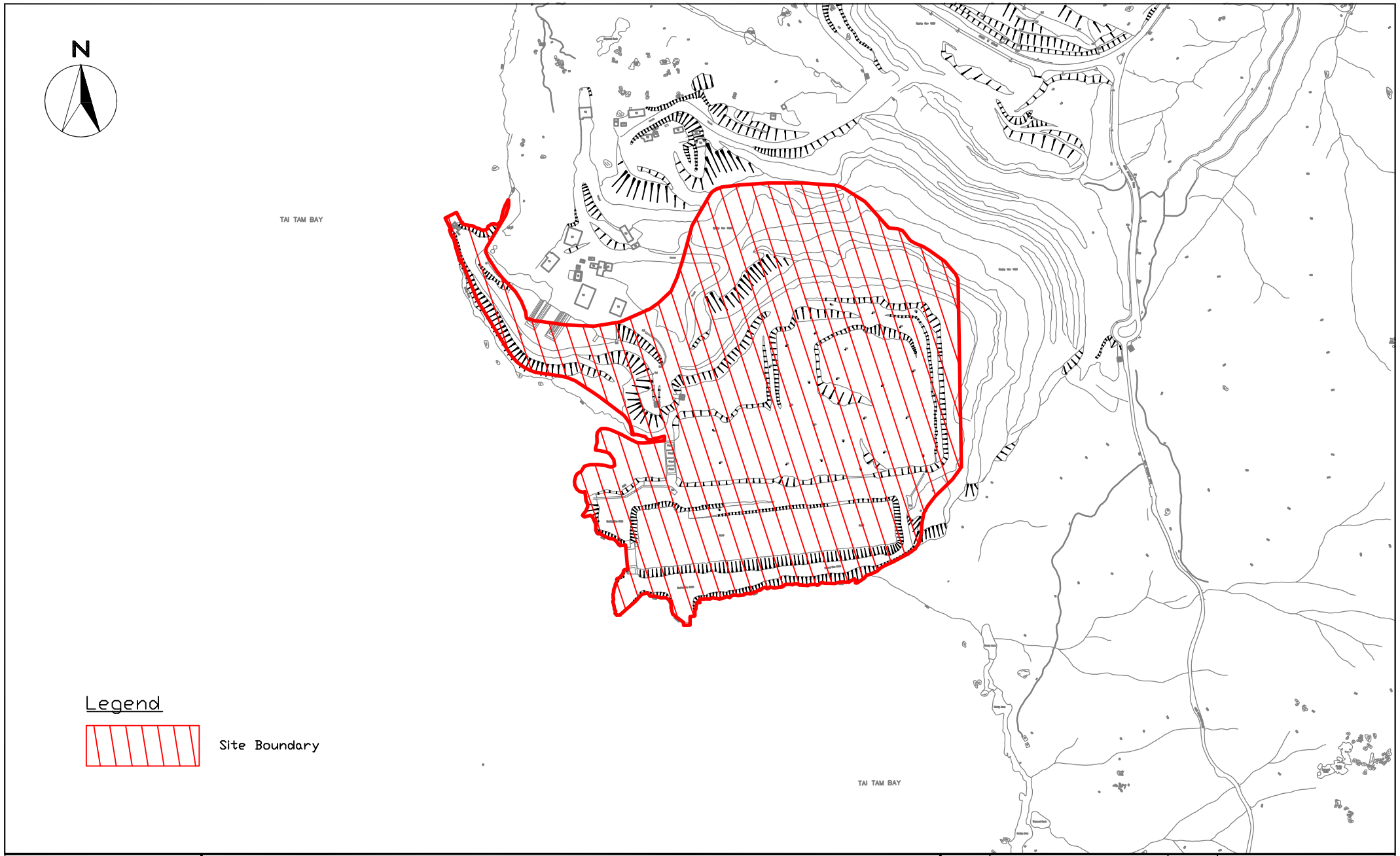
Waste/Chemical Management

- Clear the suspected oil stain on paved ground. The Contractor is reminded to provide drip trays for chemical containers.
- Construction wastes stored in the skips near the site office at Shek O should be removed as soon as possible or else they should be covered to prevent being blown away by wind.
- Clear the stagnant rain water of the drip tray and provide a plug of for the hold of drip tray.
- Chemical waste container should be separated from the general refuse for disposal.

Permits/Licenses

- N/A

FIGURES

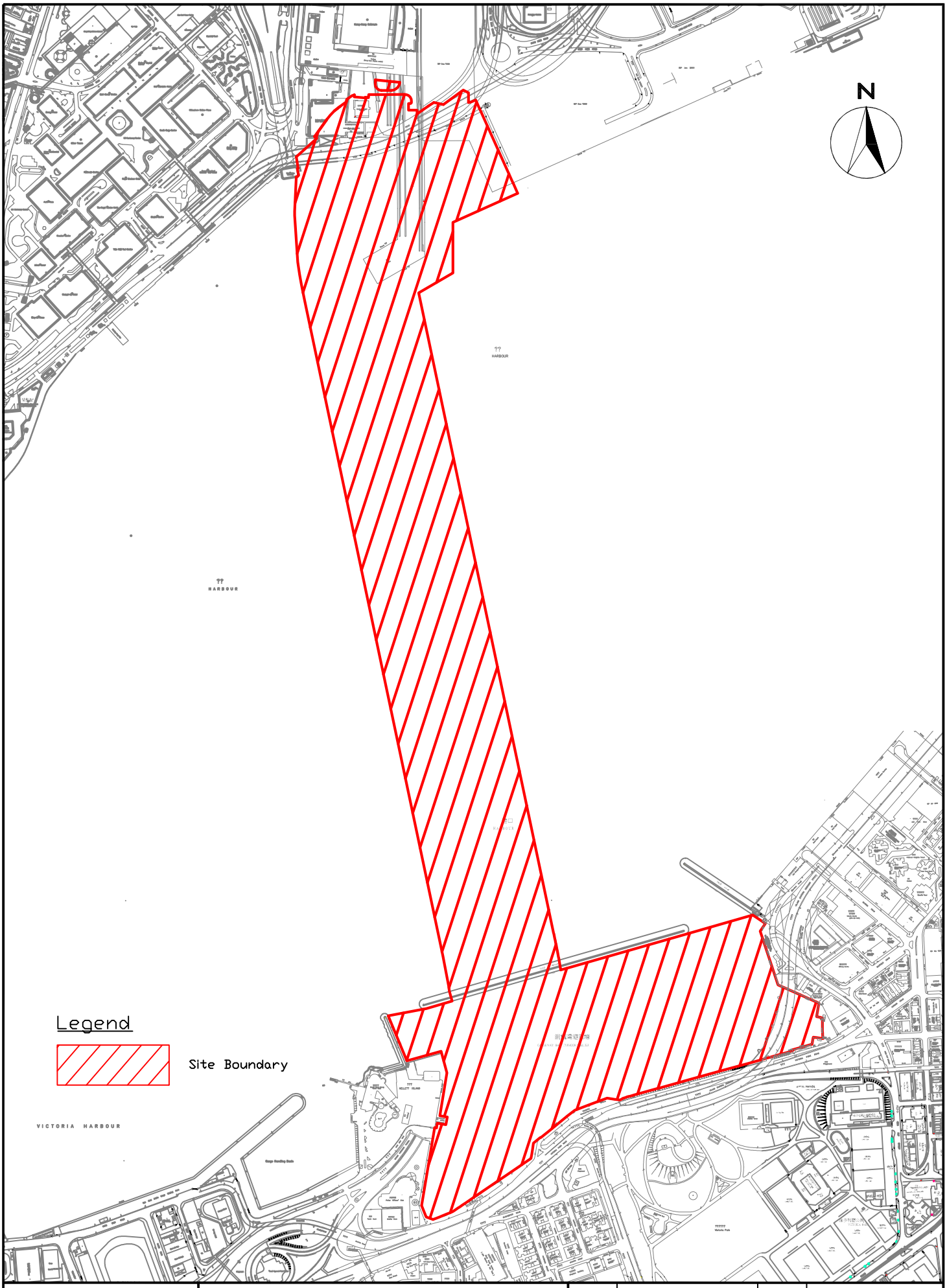


CINOTECH
Cinotech Consultants Limited

SCL 1121 - NSL Cross Harbour Tunnels

Site Layout Plan (Shek O)

SCALE	1:150	DATE	12/2014
CHECK	CHECK	DRAWN	VW
JOB No.	MA14047	FIGURE NO.	1a
		REV	–



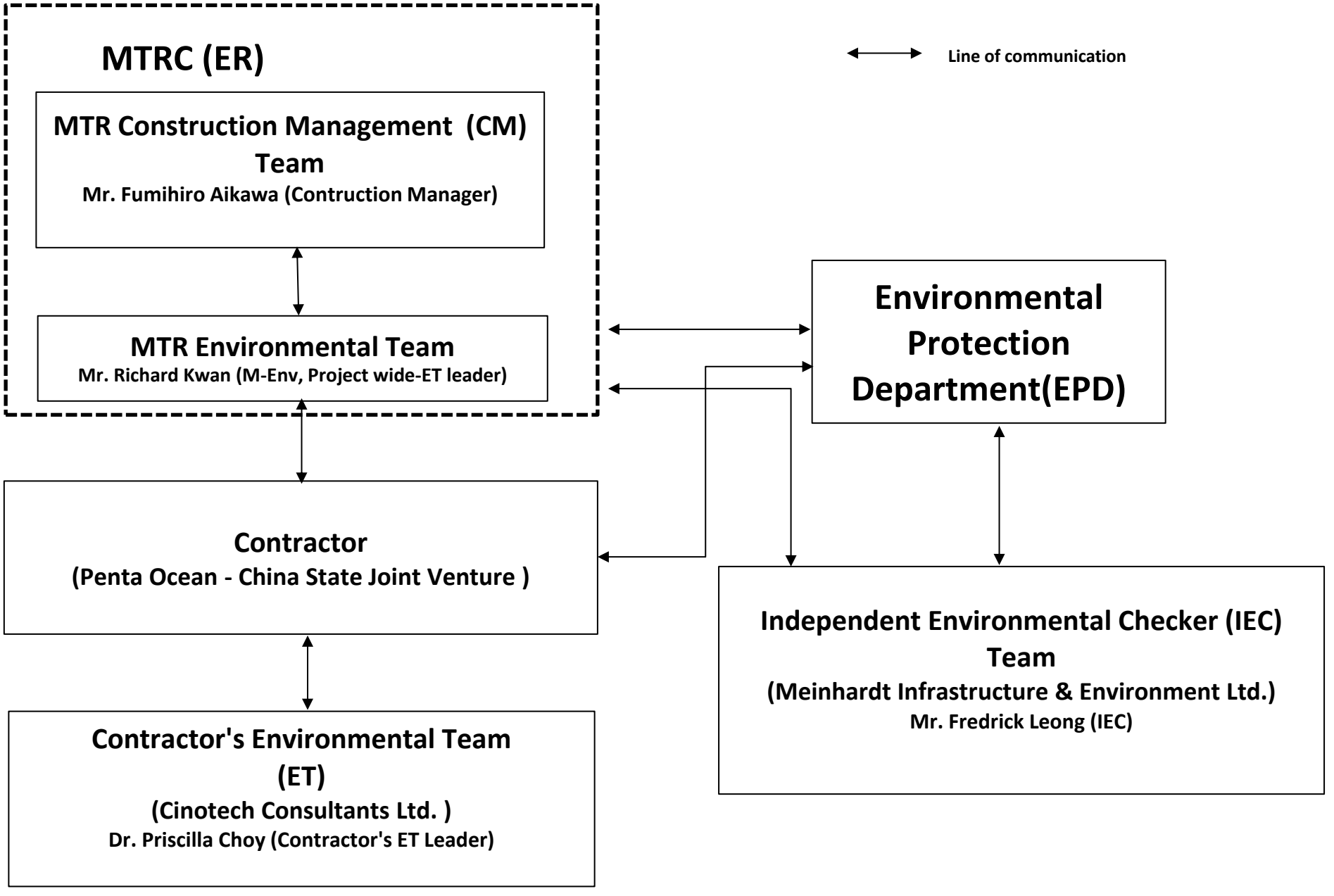
CINOTECH
Cinotech Consultants Limited

SCL 1121 - NSL Cross Harbour Tunnels

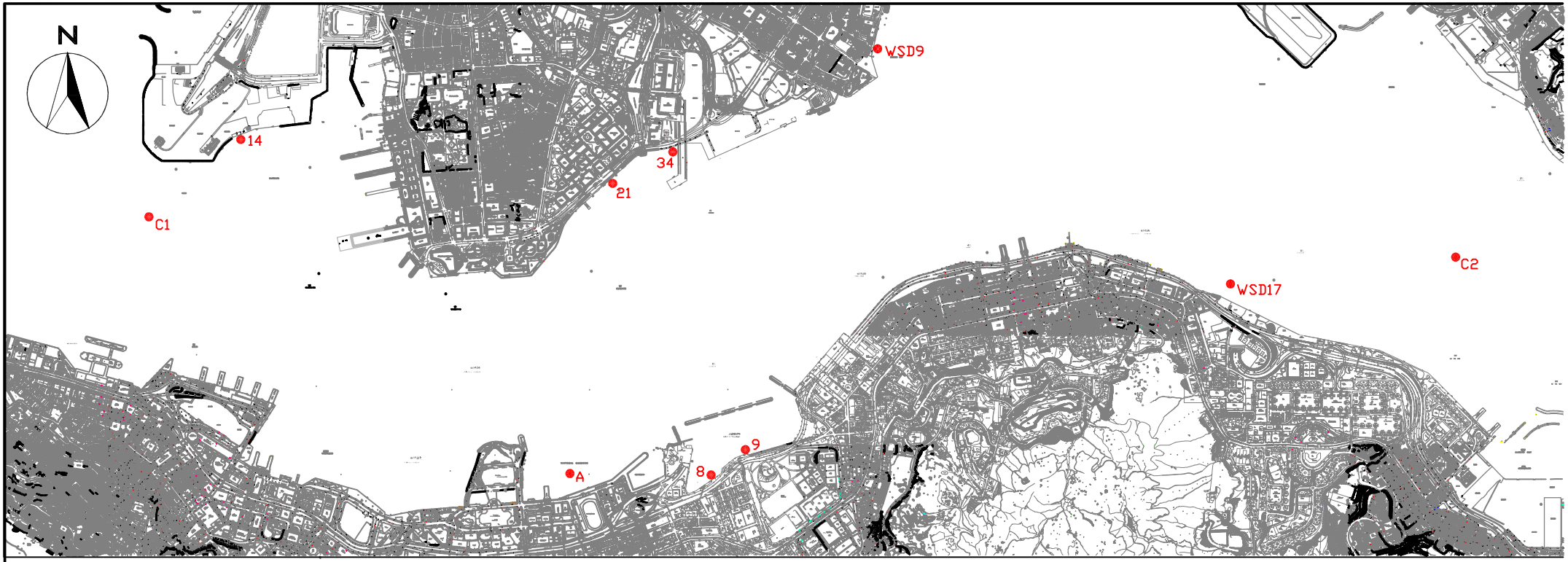
Site Layout Plan
(Victoria Harbour)

SCALE	1:220	DATE	1/2015
CHECK	JF	DRAWN	VW
JOB No.	MA14047	FIGURE NO.	1b
		REV	–

F:/Project_drawings



Title	SCL Contract 1121 The Shatin to Central Link - NSL Cross Harbour Tunnels Project Organisation for Environmental Works	Scale N.T.S	Project No. MA14047	CINOTECH
		Date Jan-15	Figure 2	



COORDINATE	EASTING	NORTHING
A	836268	816045
14	834477	817891
WSD9	837930	818357
WSD17	839863	817077
C1	833977	817442
C2	841088	817223
8	837036	816008
9	837223	816150
21	836484	817642
34	836828	817844

LEGEND

Water Quality Monitoring Station

CINOTECH
Cinotech Consultants Limited

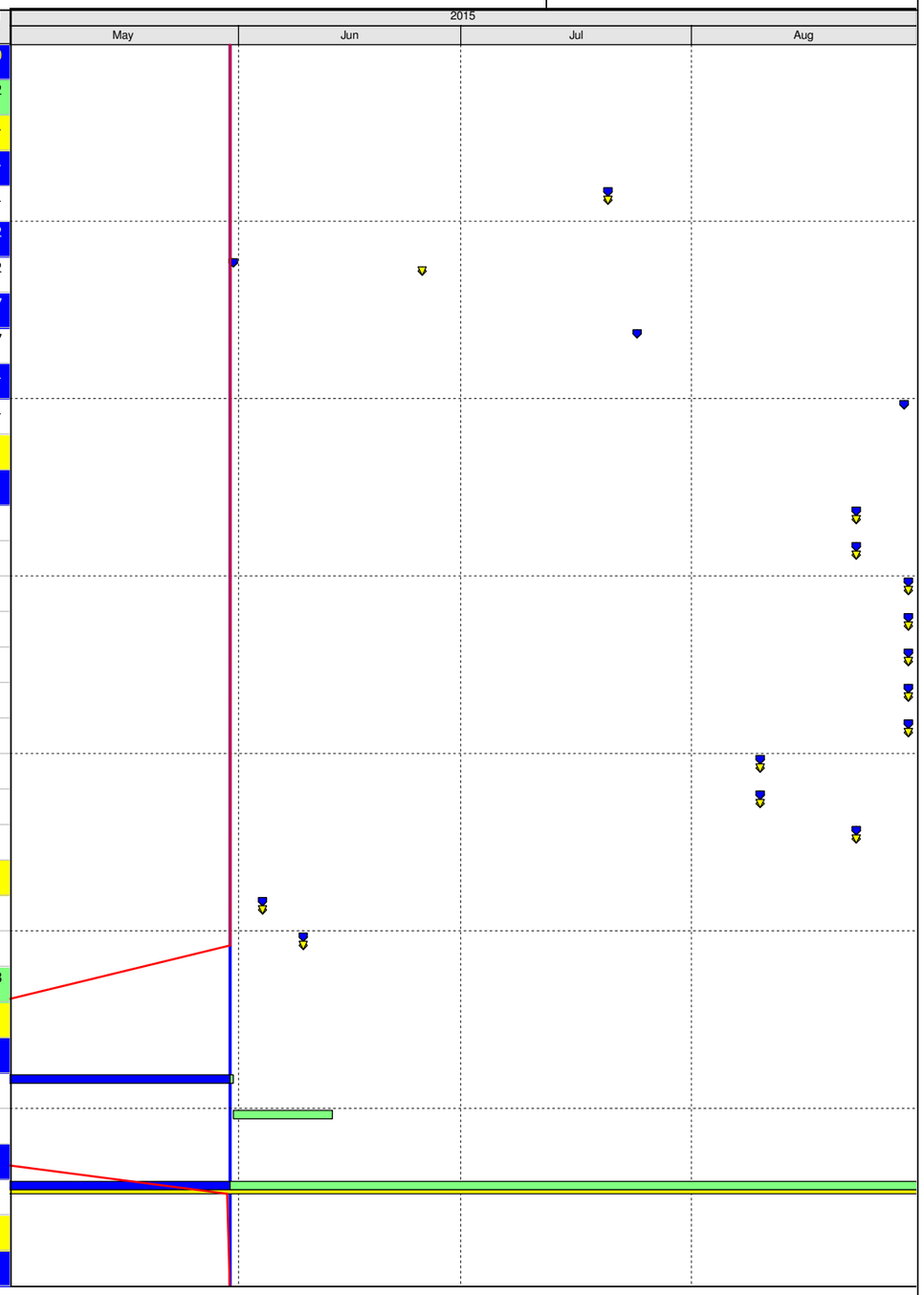
SCL 1121 - NSL Cross Harbour Tunnels

Locations of Water Quality Monitoring station in the Victoria Harbour

SCALE	1:30	DATE	1/2015
CHECK	JF	DRAWN	VW
JOB No.	MA14047	FIGURE NO. 3	REV –

APPENDIX A
TENTATIVE CONSTRCUTION PROGRAMME

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
1121 - 07 - 3M Rolling Programme (6 - 8/2015) (Ref. to PMP Rev 1a) (Updated as of 31 May 2015)				373	15-Dec-14	19-Mar-16		241	14-Jan-15 A	19-Mar-16	1730
SCHEDULE OF COMPLETION OBLIGATIONS AND MILESTONES SCHEDULE				87	04-Jun-15	15-Sep-15		76	31-May-15	30-Aug-15	1582
Milestone Schedule				82	25-Jun-15	15-Sep-15		91	31-May-15	29-Aug-15	1951
Cost Center A - General Preliminaries				0	20-Jul-15	20-Jul-15		0	20-Jul-15	20-Jul-15	1991
01121.MS10070	Milestone A3 - (Implementation of Plans/Systems + Dwgs and Manuals/Plans Approvals) (Finish On 26-Jul-15)			0		20-Jul-15	1991	0		20-Jul-15	1991
Cost Center AA - Design and ICE (Independant Checking Engineer) Cost				0	25-Jun-15	25-Jun-15		0	31-May-15	31-May-15	2042
01121.MS10150	Milestone AA2 (Finish On or Before 9 Aug 15)			0		25-Jun-15	2016	0		31-May-15	2042
Cost Center C - Hung Hom Landfall Tunnels				0	15-Sep-15	15-Sep-15		0	24-Jul-15	24-Jul-15	1987
01121.MS10290	Milestone C1 - Complete 10% of MarineCofferdam Install. (Approx 30 Pipe Piles) (Finish On or Before 27 Sept 15)			0		15-Sep-15	1934	0		24-Jul-15	1987
Cost Center D - Immersed Tunnels				0	03-Sep-15	03-Sep-15		0	29-Aug-15	29-Aug-15	1951
01121.MS10400	Milestone D2 - Complete Shek O Dry Dock, Rock Fill, Earth Bunds and Dewatering (Finish On or Before 4 Oct 15)			0		03-Sep-15	1946	0		29-Aug-15	1951
Access and Vacation Dates for Works Areas				20	10-Aug-15	30-Aug-15		20	10-Aug-15	30-Aug-15	0
Access Dates for Works Areas				20	10-Aug-15	30-Aug-15		20	10-Aug-15	30-Aug-15	0
01121.AD10010	M2B (First Access) - Land, East Finger Pier HUH			0	23-Aug-15		0	0	23-Aug-15*		0
01121.AD10020	M2C (First Access) - Land, North East Finger Pier HUH			0	23-Aug-15		0	0	23-Aug-15*		0
01121.AD10030	W1D(1) - Land,North of Fender Piles HUH			0	30-Aug-15		0	0	30-Aug-15*		0
01121.AD10040	W1D(2) - Land, North of Fender Piles HUH			0	30-Aug-15		0	0	30-Aug-15*		0
01121.AD10050	M1A - (NOV) Land, West of Finger Pier HUH			0	30-Aug-15		0	0	30-Aug-15*		0
01121.AD10060	M1B - (NOV) Land, North West and within M1A HUH			0	30-Aug-15		0	0	30-Aug-15*		0
01121.AD10070	M1C - (NOV) Land, North West of M1A HUH			0	30-Aug-15		0	0	30-Aug-15*		0
01121.AD10260	VH3A - CWB North Section Outside Breakwater (Not Earlier than 10 Aug 15)			0	10-Aug-15		0	0	10-Aug-15*		0
01121.AD10270	VH3B - CWB South Section Outside Breakwater (Not Earier than 10 Aug 15)			0	10-Aug-15		0	0	10-Aug-15*		0
01121.AD10280	M2A - Finger Pier, HUH			0	23-Aug-15		0	0	23-Aug-15*		0
Special Event				5	04-Jun-15	09-Jun-15		5	04-Jun-15	09-Jun-15	0
01121.25340	2015 Hong Kong Dragon Boat Carnival - Start			0	04-Jun-15		0	0	04-Jun-15*		0
01121.25350	2015 Hong Kong Dragon Boat Carnival - Finish			0		09-Jun-15	0	0		09-Jun-15*	0
ENGINEERING				326	15-Dec-14	21-Jan-16		133	14-Jan-15 A	08-Nov-15	1838
License and Permit Application				260	15-Dec-14	31-Aug-15		93	14-Jan-15 A	31-Aug-15	210
Application of Maine Department Notice (MDN)				107	15-Dec-14	31-Mar-15		14	20-Jan-15 A	13-Jun-15	289
01121.EG12120	MDN (alt scheme) - prepare and submit MITA to MD			93	15-Dec-14	17-Mar-15	127	0	20-Jan-15 A	31-May-15	289
01121.EG12130	MDN (alt scheme) - MD approve MITA			14	18-Mar-15	31-Mar-15	127	14	31-May-15	13-Jun-15	289
SP License Application for Batching Plant in Shek O				180	05-Mar-15	31-Aug-15		93	14-Jan-15 A	31-Aug-15	38
01121.EG11040	batching plant - Apply and process of SP license application to EPD			180	05-Mar-15	31-Aug-15	38	93	14-Jan-15 A	31-Aug-15	38
Front End Engineering and Basic Design				0	14-Jun-15	14-Jun-15		0	31-May-15	31-May-15	24
Miscellaneous Early Submissions				0	14-Jun-15	14-Jun-15		0	31-May-15	31-May-15	24



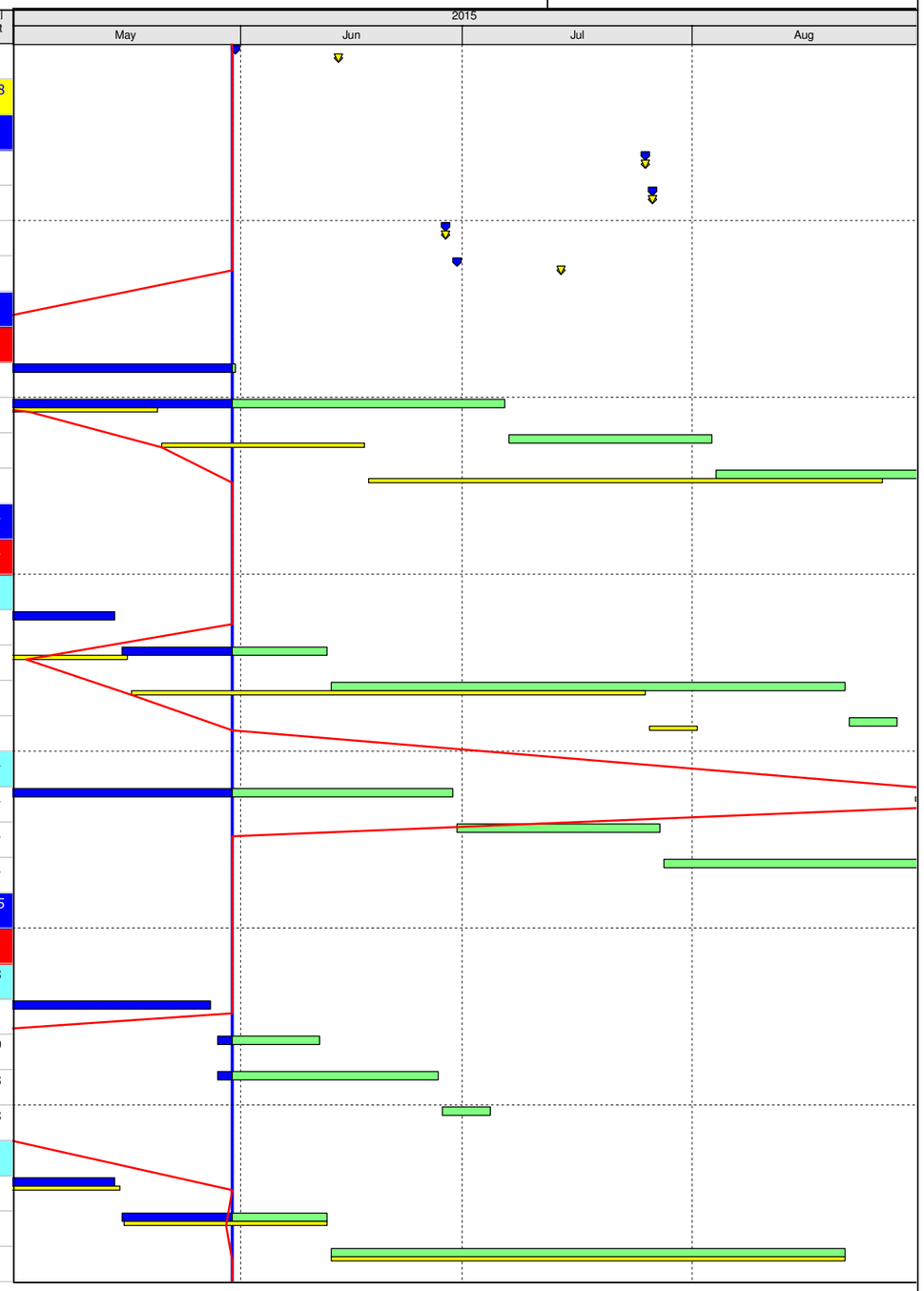
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.EG13310	Submit Barging Facility Management Plan (for HUH) (30 Days prior to Possession of M2A)			0	14-Jun-15		10	0	31-May-15		24
Detail Engineering				326	15-Dec-14	21-Jan-16		133	15-Jan-15 A	08-Nov-15	1838
Exchange of Design (Latest Dates) - NOV				28	28-Jun-15	26-Jul-15		28	28-Jun-15	26-Jul-15	0
01121.EG13150	Contract 1155B - Power Supply System and Track Side Auxiliaries (Mandatory Finish) (PS10.41 Addendum 2)			0		25-Jul-15	0	0		25-Jul-15*	0
01121.EG13160	Contract 1162B - Radio Distribution Network (Mandatory Finish)			0		26-Jul-15	0	0		26-Jul-15*	0
01121.EG13170	Contract 1163 - AFC System and Security Access Management System (Mandatory Finish)			0		28-Jun-15	0	0		28-Jun-15*	0
01121.EG13400	Contract 1112 - Area M2A (finger Pier) - Provide all documents to 1121 as per PS17.3.2 30 days before hand over			0	14-Jul-15		10	0	30-Jun-15		24
General Submission				185	23-Feb-15	26-Aug-15		135	28-Feb-15 A	12-Oct-15	29
Tunnel Drainage				185	23-Feb-15	26-Aug-15		135	28-Feb-15 A	12-Oct-15	29
01121.EG11300	Tunnel Drainage Design - Stage 1 - Engineer comment and approve			28	23-Feb-15	22-Mar-15	76	0	28-Feb-15 A	31-May-15	66
01121.EG11310	Tunnel Drainage Design - Stage 2 - prepare and submit detail design			87	23-Feb-15	20-May-15	76	37	28-Feb-15 A	06-Jul-15	29
01121.EG11320	Tunnel Drainage Design - Stage 2 - Engineer comment and approve			28	21-May-15	17-Jun-15	76	28	07-Jul-15	03-Aug-15	29
01121.EG11330	Tunnel Drainage Design - Stage 2 - submit to Gov't Authorities for endorsement			70	18-Jun-15	26-Aug-15	76	70	04-Aug-15	12-Oct-15	29
Cost Center B - North Ventilation Building NOV				325	03-Mar-15	21-Jan-16		128	14-Feb-15 A	05-Oct-15	161
NOV - Temporary Work Design				325	03-Mar-15	21-Jan-16		128	14-Feb-15 A	05-Oct-15	161
NOV - Temporary Pipe Pile Wall Cofferdam Design				152	03-Mar-15	01-Aug-15		90	14-Feb-15 A	28-Aug-15	35
01121.EG10530	NOV - Temp Cofferdam (Stage 2) - Prepare and submit detail design			47	03-Mar-15	18-Apr-15	53	0	14-Feb-15 A	15-May-15 A	
01121.EG10550	NOV - Temp Cofferdam (Stage 2) - Engineer comment and approve			28	19-Apr-15	16-May-15	53	13	16-May-15 A	12-Jun-15	35
01121.EG12890	NOV - Temp Cofferdam (Stage 2) - RDO / BD / GEO comment and approve			70	17-May-15	25-Jul-15	53	70	13-Jun-15	21-Aug-15	35
01121.EG12900	NOV - Temp Cofferdam (Stage 3) - issue working drawings			7	26-Jul-15	01-Aug-15	62	7	22-Aug-15	28-Aug-15	35
NOV - ELS and Utilities Temporary Support Design				144	31-Aug-15	21-Jan-16		128	01-May-15 A	05-Oct-15	161
01121.EG10950	NOV - ELS & UU support (Stage 2) - Prepare and submit detail design			46	31-Aug-15	15-Oct-15	53	30	01-May-15 A	29-Jun-15	161
01121.EG10960	NOV - ELS & UU support (Stage 2) - Engineer comment and approve			28	16-Oct-15	12-Nov-15	53	28	30-Jun-15	27-Jul-15	161
01121.EG12910	NOV - ELS & UU support (Stage 2) - RDO / BD / GEO comment and approve			70	13-Nov-15	21-Jan-16	53	70	28-Jul-15	05-Oct-15	161
Cost Center C - Hung Hom Landfall Tunnels				329	15-Dec-14	08-Nov-15		162	16-Feb-15 A	08-Nov-15	2245
HUH Temporary Work Design				282	15-Dec-14	22-Sep-15		110	23-Feb-15 A	17-Sep-15	55
HUH (Area B) - Temporary Piling Platform and Decking				131	15-Dec-14	24-Apr-15		35	23-Feb-15 A	04-Jul-15	103
01121.EG12690	HUH (Area B) - Temporary Decking (above cofferdam) - Prepare Design			96	15-Dec-14	20-Mar-15	21	0	23-Feb-15 A	28-May-15 A	
01121.EG12700	HUH (Area B) - Temporary Decking (above cofferdam) - ICE check and issue check certificate			12	21-Mar-15	01-Apr-15	37	12	29-May-15 A	11-Jun-15	119
01121.EG12710	HUH (Area B) - Temporary Decking (above cofferdam) - Engineer comment and approve			28	21-Mar-15	17-Apr-15	21	28	29-May-15 A	27-Jun-15	103
01121.EG12720	HUH (Area B) - Temporary Decking (above cofferdam) - issue working drawings			7	18-Apr-15	24-Apr-15	21	7	28-Jun-15	04-Jul-15	103
HUH (Area C) - Temporary Pipe Pile Wall Cofferdam & ELS Design				151	31-Mar-15	28-Aug-15		90	24-Feb-15 A	28-Aug-15	19
01121.EG12780	HUH (Area C) - Temp Cofferdam & ELS (Stage 2) - Prepare and submit detail design			46	31-Mar-15	15-May-15	19	0	24-Feb-15 A	15-May-15 A	
01121.EG12790	HUH (Area C) - Temp Cofferdam & ELS (Stage 2) - Engineer comment and approve			28	16-May-15	12-Jun-15	19	13	16-May-15 A	12-Jun-15	19
01121.EG12800	HUH (Area C) - Temp Cofferdam & ELS (Stage 3) - RDO / BD / GEO comment and approve			70	13-Jun-15	21-Aug-15	19	70	13-Jun-15	21-Aug-15	19



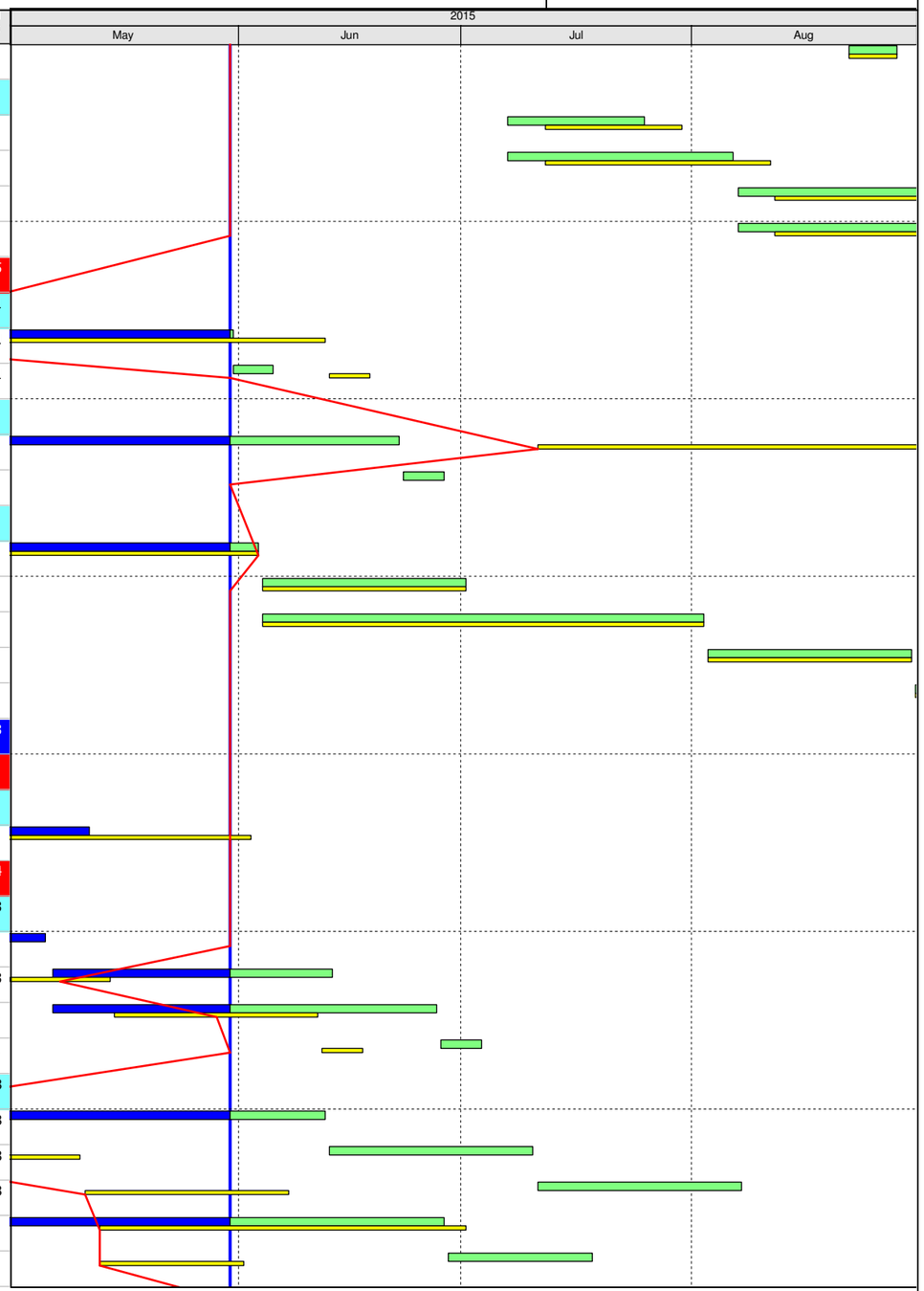
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.EG12810	HUH (Area C) - Temp Cofferdam & ELS (Stage 3) - issue working drawings			7	22-Aug-15	28-Aug-15	19	7	22-Aug-15	28-Aug-15	19
HUH (Area C) - Pumping Test Proposal				73	12-Jul-15	22-Sep-15		73	07-Jul-15	17-Sep-15	55
01121.EG12820	HUH Tunnel (Area C) - Pumping Test Proposal (Stage 1) - Prepare and submit design statement			19	12-Jul-15	30-Jul-15	50	19	07-Jul-15	25-Jul-15	55
01121.EG12830	HUH Tunnel (Area C) - Pumping Test Proposal (Stage 1) - Prepare and submit scheme design			31	12-Jul-15	11-Aug-15	50	31	07-Jul-15	06-Aug-15	55
01121.EG12840	HUH Tunnel (Area C) - Pumping Test Proposal (Stage 1) - Engineer comment and approve			28	12-Aug-15	08-Sep-15	50	28	07-Aug-15	03-Sep-15	55
01121.EG12850	HUH Tunnel (Area C) - Pumping Test Proposal (Stage 2) - Prepare and submit detail design			42	12-Aug-15	22-Sep-15	50	42	07-Aug-15	17-Sep-15	55
HUH Permanent Work Design				258	24-Feb-15	08-Nov-15		162	16-Feb-15 A	08-Nov-15	2245
HUH - Fender Pile Demolition Work				76	04-Apr-15	18-Jun-15		6	22-Apr-15 A	05-Jun-15	2401
01121.EG11270	HUH Fender Pile - demolition plan (Stage 2) - submit to GEO / BD / RDO for endorsement			70	04-Apr-15	12-Jun-15	14	0	22-Apr-15 A	31-May-15	2401
01121.EG11280	HUH Fender Pile - demolition plan (Stage 3) - issue working drawings			6	13-Jun-15	18-Jun-15	14	6	31-May-15	05-Jun-15	2401
HUH - Finger Pier Demolition Work				76	11-Jul-15	24-Sep-15		29	22-Apr-15 A	28-Jun-15	311
01121.EG11470	HUH Finger Pier - demolition plan (Stage 2) - submit to GEO / BD / RDO for endorsement			70	11-Jul-15	18-Sep-15	223	23	22-Apr-15 A	22-Jun-15	311
01121.EG11480	HUH Finger Pier - demolition plan (Stage 3) - issue working drawings			6	19-Sep-15	24-Sep-15	223	6	23-Jun-15	28-Jun-15	311
HUH - Re-provisioning of Finger Pier				258	24-Feb-15	08-Nov-15		162	16-Feb-15 A	08-Nov-15	92
01121.EG10600	Finger Pier - Permanent Work (Stage 1) - Prepare, Design and Submit to Engineer			100	24-Feb-15	03-Jun-15	92	4	16-Feb-15 A	03-Jun-15	92
01121.EG10610	Finger Pier - Permanent Work (Stage 1) - Engineer Comment and Approve by Engineer			28	04-Jun-15	01-Jul-15	92	28	04-Jun-15	01-Jul-15	92
01121.EG10620	Finger Pier - Permanent Work (stage 2) - Prepare Design and Submit to Engineer			60	04-Jun-15	02-Aug-15	92	60	04-Jun-15	02-Aug-15	92
01121.EG10630	Finger Pier - Permanent Work (stage 2) - Engineer Comment, Re-Submit and Approve by Engineer			28	03-Aug-15	30-Aug-15	92	28	03-Aug-15	30-Aug-15	92
01121.EG10640	Finger Pier - Permanent Work (Stage 2) - Statutory Submission and Approval			70	31-Aug-15	08-Nov-15	92	70	31-Aug-15	08-Nov-15	92
Cost center D - Immersed Tube Tunnels				234	15-Dec-14	30-Sep-15		118	23-Feb-15 A	20-Oct-15	1853
Shek O Site Setup Design				60	04-Apr-15	02-Jun-15		0	16-Apr-15 A	12-May-15 A	
Shek O Concrete Batching Plant Design				60	04-Apr-15	02-Jun-15		0	16-Apr-15 A	12-May-15 A	
01121.EG12440	Shek O - Concrete Batching Plant Design (Stage 3) - BD / RDO / GEO comment and approve			60	04-Apr-15	02-Jun-15	16	0	16-Apr-15 A	12-May-15 A	
IMT Temporary Work Design				230	15-Dec-14	01-Aug-15		143	23-Feb-15 A	20-Oct-15	2264
IMT Installation System Design				105	05-Mar-15	17-Jun-15		34	02-Mar-15 A	03-Jul-15	2373
01121.EG10880	IMT - Winch Towers, Alignment Towers Design - Prepare and Submit to ICE			57	05-Mar-15	30-Apr-15	718	0	02-Mar-15 A	06-May-15 A	
01121.EG10890	IMT - Winch Towers, Alignment Towers Design - ICE comment and issue check cert.			14	01-May-15	14-May-15	718	14	07-May-15 A	13-Jun-15	2393
01121.EG10900	IMT - Winch Towers, Alignment Towers Design - submit to Engineer for comment and approve			28	15-May-15	11-Jun-15	718	28	07-May-15 A	27-Jun-15	702
01121.EG10910	IMT - Winch Towers, Alignment Towers Design (Stage 3) - Issue Working Drawings			6	12-Jun-15	17-Jun-15	718	6	28-Jun-15	03-Jul-15	702
IMT Travelling Formwork Design				132	12-Mar-15	21-Jul-15		99	23-Feb-15 A	06-Sep-15	2308
01121.EG12010	IMT Travelling Form - Prepare and Submit Design for travelling formwork			32	12-Mar-15	12-Apr-15	3	13	23-Feb-15 A	12-Jun-15	2338
01121.EG12020	IMT Travelling Form - ICE Check Design for travelling formwork			28	13-Apr-15	10-May-15	82	28	13-Jun-15	10-Jul-15	2338
01121.EG12150	IMT Travellling Form - Engineer Comment and Approve Design for travelling formwork			28	11-May-15	07-Jun-15	82	28	11-Jul-15	07-Aug-15	2338
01121.EG13430	IMT Travellling Form - Prepare and submit shop drawings for Travelling Formwork fabrication (remaining portion)			50	13-May-15	01-Jul-15	58	29	29-Apr-15 A	28-Jun-15	86
01121.EG13440	IMT Travelling Form - Engineer comment and approve shop drawings (1st portion)			20	13-May-15	01-Jun-15	3	20	29-Jun-15	18-Jul-15	86



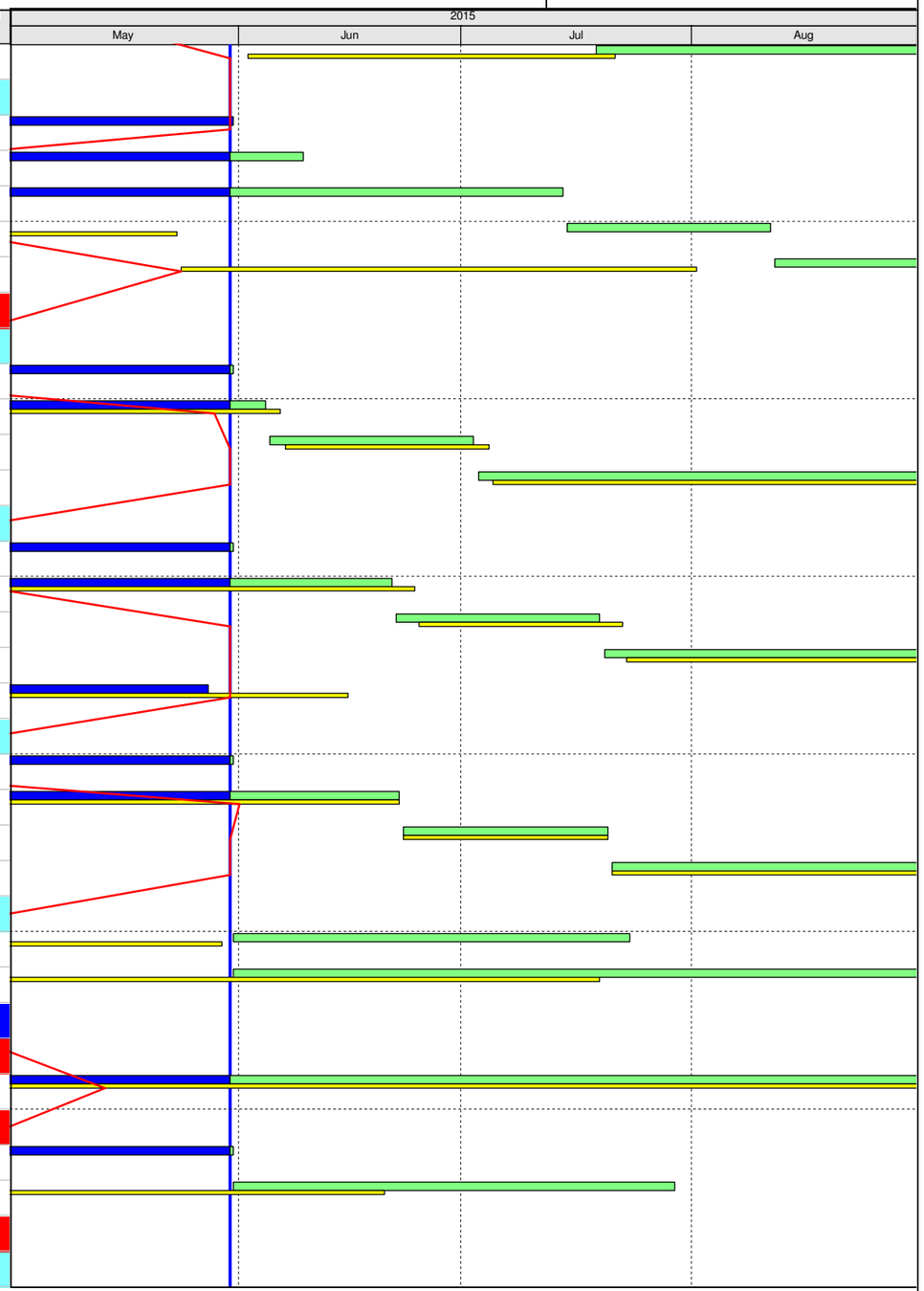
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.EG13450	IMT Travelling Form - Engineer comment and approve shop drawings (remaining portion)			50	02-Jun-15	21-Jul-15	38	50	19-Jul-15	06-Sep-15	86
IMT Dredging Plan				230	15-Dec-14	01-Aug-15		143	28-Feb-15 A	20-Oct-15	153
01121.EG11500	IMT Dredging Plan (Stage 1) - Prepare and Submit scheme design			87	15-Dec-14	11-Mar-15	233	0	28-Feb-15 A	31-May-15 A	
01121.EG11510	IMT Dredging Plan (Stage 1) - Engineer Comment, Re-Submit and Approve			28	12-Mar-15	08-Apr-15	233	10	19-Apr-15 A	09-Jun-15	188
01121.EG11520	IMT Dredging Plan (Stage 2) - Prepare and Submit Detail Design			45	12-Mar-15	25-Apr-15	233	45	19-Apr-15 A	14-Jul-15	153
01121.EG11530	IMT Dredging Plan (Stage 2) - Engineer Comment, Re-Submit and Approve			28	26-Apr-15	23-May-15	233	28	15-Jul-15	11-Aug-15	153
01121.EG11540	IMT Dredging Plan (Stage 2) - Gov't Authorities endorsement			70	24-May-15	01-Aug-15	233	70	12-Aug-15	20-Oct-15	153
IMT Permanent Work Design				169	07-Mar-15	30-Sep-15		100	23-Feb-15 A	28-Sep-15	459
IMT Foundation and Marine Earthwork				188	09-Mar-15	12-Sep-15		103	07-Mar-15 A	10-Sep-15	482
01121.EG11650	IMT Foundation and backfill (Stage 1) - Engineer Comment, Re-Submit and Approve			28	09-Mar-15	05-Apr-15	18	0	07-Mar-15 A	31-May-15	585
01121.EG11660	IMT Foundation and backfill (Stage 2) - Prepare and Submit Detail Design			90	09-Mar-15	06-Jun-15	18	5	07-Mar-15 A	04-Jun-15	126
01121.EG11670	IMT Foundation and backfill (Stage 2) - Engineer Comment, Re-Submit and Approve			28	07-Jun-15	04-Jul-15	18	28	05-Jun-15	02-Jul-15	126
01121.EG11680	IMT Foundation and backfill (Stage 2) - RDO/BD/GEO Submission and Approval			70	05-Jul-15	12-Sep-15	18	70	03-Jul-15	10-Sep-15	126
IMT Tunnel Structure Design				169	07-Mar-15	30-Sep-15		100	23-Feb-15 A	27-Sep-15	34
01121.EG12050	IMT Tunnel Structure Design (Stage 1) - Engineer Comment, Re-Submit and Approve			28	07-Mar-15	03-Apr-15	40	0	07-Mar-15 A	31-May-15	65
01121.EG12060	IMT Tunnel Structure Design (Stage 2) - Prepare and Submit Detail Design			110	07-Mar-15	24-Jun-15	40	22	23-Feb-15 A	21-Jun-15	43
01121.EG12070	IMT Tunnel Structure Design (Stage 2) - Engineer Comment, Re-Submit and Approve			28	25-Jun-15	22-Jul-15	40	28	22-Jun-15	19-Jul-15	43
01121.EG12170	IMT Tunnel Structure Design (Stage 2) - RDO/BD/GEO Submission and Approval			70	23-Jul-15	30-Sep-15	40	70	20-Jul-15	27-Sep-15	43
01121.EG13410	IMT Tunnel Structure Design - Prepare and Submit FSS and TSSC			80	07-Mar-15	15-Jun-15	40	0	12-Mar-15 A	28-May-15 A	
IMT Immersion Joint Design				206	07-Mar-15	28-Sep-15		121	07-Mar-15 A	28-Sep-15	141
01121.EG12280	IMT Immersion Joint Design (Stage 1) - Engineer Comment, Re-Submit and Approve			28	07-Mar-15	03-Apr-15	141	0	07-Mar-15 A	31-May-15	164
01121.EG12290	IMT Immersion Joint Design (Stage 2) - Prepare and Submit Detail Design			108	07-Mar-15	22-Jun-15	141	23	07-Mar-15 A	22-Jun-15	141
01121.EG12300	IMT Immersion Joint Design (Stage 2) - Engineer Comment, Re-Submit and Approve			28	23-Jun-15	20-Jul-15	141	28	23-Jun-15	20-Jul-15	141
01121.EG12310	IMT Immersion Joint Design (Stage 2) - Gov't Authorities Endorsement			70	21-Jul-15	28-Sep-15	141	70	21-Jul-15	28-Sep-15	141
IMT Civil Provision Design				105	06-Apr-15	19-Jul-15		105	31-May-15	12-Sep-15	585
01121.EG13080	IMT - Civil Provision Works & BS Installation (Stage 1) - Prepare and Submit Design Statement			54	06-Apr-15	29-May-15	640	54	31-May-15	23-Jul-15	585
01121.EG13090	IMT - Civil Provision Works & BS Installation (Stage 1) - prepare and submit scheme design			105	06-Apr-15	19-Jul-15	640	105	31-May-15	12-Sep-15	585
Cost Center E - CBTS Tunnels				300	15-Dec-14	10-Oct-15		133	15-Jan-15 A	10-Oct-15	522
CBTS License and Permit Application				300	15-Dec-14	10-Oct-15		133	23-Feb-15 A	10-Oct-15	94
01121.EG10030	CBTS Tunnel - Mooring / Anchorage Rearrangement Approval Process for VH3C & VH3D			300	15-Dec-14	10-Oct-15	94	133	23-Feb-15 A	10-Oct-15	94
CBTS Marine Traffic Impact Assessment				88	25-Mar-15	20-Jun-15		60	25-Mar-15 A	29-Jul-15	55
01121.EG10080	CBTS MTIA - Engineer 1st Comment, Re-Submit and Approve by Engineer			28	25-Mar-15	21-Apr-15	94	0	25-Mar-15 A	31-May-15	55
01121.EG10090	CBTS MTIA - Submit to MD and Approve			60	22-Apr-15	20-Jun-15	94	60	31-May-15	29-Jul-15	55
CBTS Temporary Work Design				172	07-Mar-15	25-Aug-15		101	15-Jan-15 A	08-Sep-15	273
CBTS - Instrumentation and Monitoring				165	07-Mar-15	18-Aug-15		80	01-Mar-15 A	18-Aug-15	224



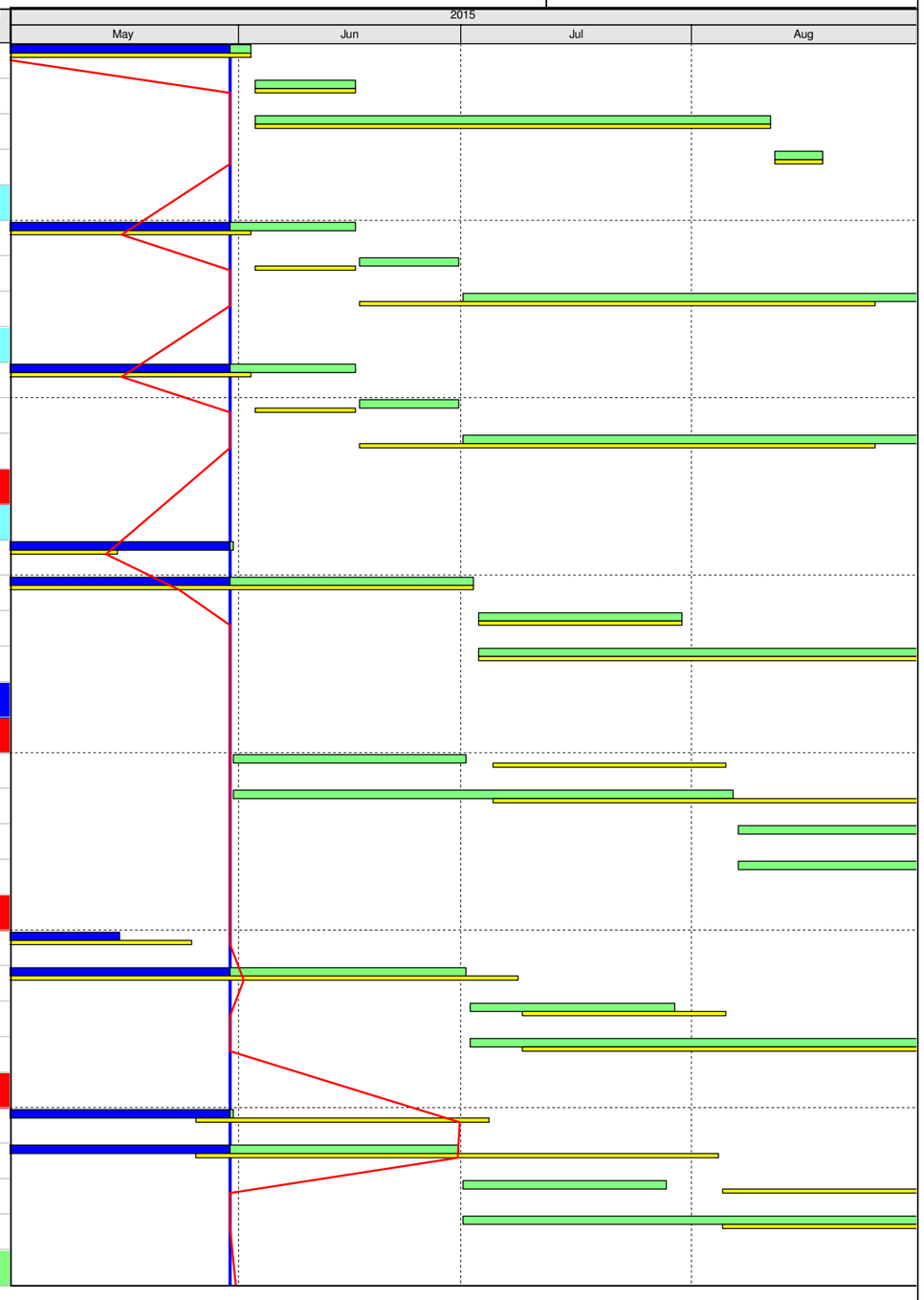
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.EG11700	CBTS - Instrumentation and Monitoring - Prepare and Submit Design to ICE			88	07-Mar-15	02-Jun-15	224	3	01-Mar-15 A	02-Jun-15	224
01121.EG11710	CBTS - Instrumentation and Monitoring - ICE check and issue check certificate			14	03-Jun-15	16-Jun-15	224	14	03-Jun-15	16-Jun-15	224
01121.EG11720	CBTS - Instrumentation and Monitoring - Engineer Comment, Re-Submit and Approve			70	03-Jun-15	11-Aug-15	224	70	03-Jun-15	11-Aug-15	224
01121.EG11730	CBTS - Instrumentation and Monitoring - Issue Working Drawings			7	12-Aug-15	18-Aug-15	224	7	12-Aug-15	18-Aug-15	224
CBTS - (VH3B & VH3C) Temporary Reclamation Design				172	07-Mar-15	25-Aug-15		101	01-Mar-15 A	08-Sep-15	37
01121.EG10010	CBTS - Temp Reclamation Design (VH3B & 3C) - Prepare and Submit to ICE			88	07-Mar-15	02-Jun-15	51	17	01-Mar-15 A	16-Jun-15	37
01121.EG10850	CBTS - Temp Reclamation Design (VH3B & 3C) - ICE check			14	03-Jun-15	16-Jun-15	51	14	17-Jun-15	30-Jun-15	37
01121.EG10860	CBTS - Temp Reclamation Design (VH3B & 3C) - Engineer comment, re-submit and approve			70	17-Jun-15	25-Aug-15	51	70	01-Jul-15	08-Sep-15	37
CBTS - (VH3B, VH3C & VH3D) Temporary Pipe Pile Wave Barrier Wall Design				172	07-Mar-15	25-Aug-15		101	15-Jan-15 A	08-Sep-15	273
01121.EG11970	CBTS - Temp Wave Barrier Wall (VH3B, 3C & 3D) - Prepare Design and Submit to ICE			88	07-Mar-15	02-Jun-15	63	17	15-Jan-15 A	16-Jun-15	49
01121.EG11980	CBTS - Temp Wave Barrier Wall (VH3B, 3C & 3D) - ICE check			14	03-Jun-15	16-Jun-15	287	14	17-Jun-15	30-Jun-15	273
01121.EG11990	CBTS - Temp Wave Barrier Wall (VH3B, 3C & 3D) - Engineer Comment, Re-Submit and Approve			70	17-Jun-15	25-Aug-15	287	70	01-Jul-15	08-Sep-15	273
CBTS Permanent Work Design				141	14-Apr-15	01-Sep-15		94	15-Apr-15 A	01-Sep-15	561
CBTS - Removal, Partial and Complete Re-Provisioning of Breakwater				141	14-Apr-15	01-Sep-15		94	15-Apr-15 A	01-Sep-15	561
01121.EG12580	CBTS - Re-provisioning of Breakwater (Stage 1) - Prepare Design Statement and Submit to Engineer			32	14-Apr-15	15-May-15	561	0	15-Apr-15 A	31-May-15	594
01121.EG12590	CBTS - Re-provisioning of Breakwater (Stage 1) - Prepare Scheme Design and Submit to Engineer			80	14-Apr-15	02-Jul-15	561	33	15-Apr-15 A	02-Jul-15	561
01121.EG12600	CBTS - Re-provisioning of Breakwater (Stage 1) - Engineer comment and approve			28	03-Jul-15	30-Jul-15	561	28	03-Jul-15	30-Jul-15	561
01121.EG12610	CBTS - Re-provisioning of Breakwater (Stage 2) - Prepare Detail Design and submit to Engineer			61	03-Jul-15	01-Sep-15	561	61	03-Jul-15	01-Sep-15	561
Cost Centre G - RRIW				248	07-Mar-15	09-Nov-15		128	20-Mar-15 A	05-Oct-15	494
RRIW - Reprovisioning of Seawall at Hung Hom				128	05-Jul-15	09-Nov-15		128	31-May-15	05-Oct-15	493
01121.EG10310	RRIW - HUH Seawall -Rreprovisioning Design (Stage 1) - Prepare and submit Design Statement			32	05-Jul-15	05-Aug-15	458	32	31-May-15	01-Jul-15	493
01121.EG10320	RRIW - HUH Seawall -Rreprovisioning Design (Stage 1) - Prepare Design and Submit to Engineer			68	05-Jul-15	10-Sep-15	458	68	31-May-15	06-Aug-15	493
01121.EG10330	RRIW - HUH Seawall - Reprovisioning Design (Stage 1) - Engineer 1st Comment, Re-Submit and Approve by Engineer			28	11-Sep-15	08-Oct-15	458	28	07-Aug-15	03-Sep-15	493
01121.EG10340	RRIW - HUH Seawall - Reprovisioning Design (Stage 2) - Prepare Design and Submit to Engineer			60	11-Sep-15	09-Nov-15	458	60	07-Aug-15	05-Oct-15	493
RRIW - Reprovisioning of CBTS Breakwater				186	07-Mar-15	08-Sep-15		94	20-Mar-15 A	01-Sep-15	528
01121.EG10380	RRIW - CBTS Breakwater - Reprovisioning Design (Stage 1) - Prepare and submit Design Statement			80	07-Mar-15	25-May-15	458	0	20-Mar-15 A	16-May-15 A	
01121.EG10390	RRIW - CBTS Breakwater - Reprovisioning Design (Stage 1) - Prepare and Submit Scheme Design			124	07-Mar-15	08-Jul-15	521	32	20-Mar-15 A	01-Jul-15	528
01121.EG10400	RRIW - CBTS Breakwater - Reprovisioning Design (Stage 1) - Engineer 1st Comment, Re-Submit and Approve by Engineer			28	09-Jul-15	05-Aug-15	521	28	02-Jul-15	29-Jul-15	528
01121.EG10410	RRIW - CBTS Breakwater - Reprovisioning Design (Stage 2) - Prepare and Submit Detail Design			62	09-Jul-15	08-Sep-15	521	62	02-Jul-15	01-Sep-15	528
RRIW - Reprovisioning of Fender Piles at Hung Hom				134	26-May-15	06-Oct-15		94	21-Apr-15 A	01-Sep-15	516
01121.EG10450	RRIW - Fender Piles - Reprovisioning Design (Stage 1) - Prepare and submit design statement			40	26-May-15	04-Jul-15	458	0	21-Apr-15 A	31-May-15	493
01121.EG10460	RRIW - Fender Piles - Reprovisioning Design (Stage 1) - Prepare Scheme Design and Submit to Engineer			71	26-May-15	04-Aug-15	481	31	21-Apr-15 A	30-Jun-15	516
01121.EG10470	RRIW - Fender Piles - Reprovisioning Design (Stage 1) - Engineer 1st Comment, Re-Submit and Approve by Engineer			28	05-Aug-15	01-Sep-15	481	28	01-Jul-15	28-Jul-15	516
01121.EG10480	RRIW - Fender Piles - Reprovisioning Design (Stage 2) - Prepare Design and Submit to Engineer			63	05-Aug-15	06-Oct-15	481	63	01-Jul-15	01-Sep-15	516
PROCUREMENT (Major Sub-Contracts and Equipment)				136	02-Jun-15	12-Nov-15		98	02-May-15 A	24-Sep-15	42



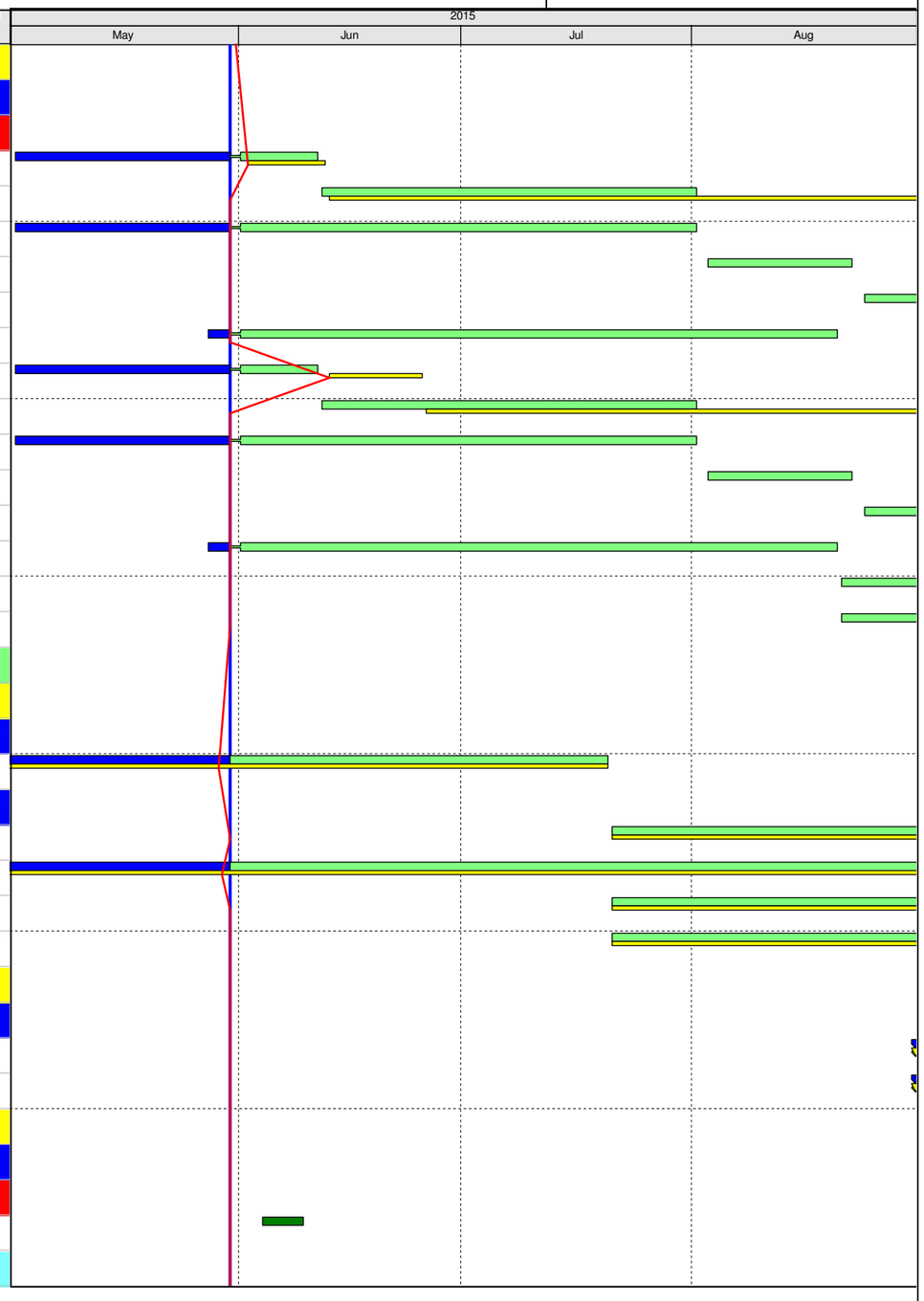
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
Cost center D - Immersed Tunnels				136	02-Jun-15	12-Nov-15		98	02-May-15 A	24-Sep-15	42
Mobil Formwork (travellers) for IMT Fabrication at Shek O Site				136	02-Jun-15	12-Nov-15		98	02-May-15 A	24-Sep-15	42
Fabrication and Transport				136	02-Jun-15	12-Nov-15		98	02-May-15 A	24-Sep-15	42
01121.PC10141	Fabrication, trial assembly and FAT of Travelling Formwork Type A(set 1) (1st portion)			10	02-Jun-15	12-Jun-15	3	10	02-May-15 A	11-Jun-15	61
01121.PC10142	Fabrication, trial assembly and FAT of Travelling Formwork Type A(set 1) (remaining portion)			104	13-Jun-15	16-Oct-15	4	42	12-Jun-15	01-Aug-15	61
01121.PC10142-10	Formwork Type A1(set 1) base - fabrication and trial assembly			0				52	02-May-15 A	01-Aug-15	33
01121.PC10142-20	Formwork Type A1(set 1) base - shipping			0				18	03-Aug-15	22-Aug-15	33
01121.PC10142-30	Formwork Type A1(set 1) base - site assembling			0				28	24-Aug-15	24-Sep-15	33
01121.PC10142-40	Formwork Type A1(set 1) wall and soffit - fabrication and trial assembly			0				68	28-May-15 A	20-Aug-15	45
01121.PC10151	Fabrication, trial assembly and FAT of Travelling Formwork Type A(set 2) (1st portion)			10	13-Jun-15	25-Jun-15	3	10	02-May-15 A	11-Jun-15	14
01121.PC10152	Fabrication, trial assembly and FAT of Travelling Formwork Type A(set 2) (remaining portion)			104	26-Jun-15	29-Oct-15	3	42	12-Jun-15	01-Aug-15	70
01121.PC10152-10	Formwork Type A1(set 2) base - fabrication and trial assembly			0				52	02-May-15 A	01-Aug-15	33
01121.PC10152-20	Formwork Type A1(set 2) base - shipping			0				18	03-Aug-15	22-Aug-15	33
01121.PC10152-30	Formwork Type A1(set 2) base - site assembling			0				28	24-Aug-15	24-Sep-15	33
01121.PC10152-40	Formwork Type A1(set 2) wall and soffit - fabrication and trial assembly			0				68	28-May-15 A	20-Aug-15	54
01121.PC10335	Transportation and Delivery to Site of Travelling Formwork Type A(set 1) - wall and ceiling			12	17-Oct-15	31-Oct-15	4	18	21-Aug-15	10-Sep-15	45
01121.PC10410	Transportation and Delivery to Site of Travelling Formwork Type A(set 2) - wall and ceiling			12	30-Oct-15	12-Nov-15	3	18	21-Aug-15	10-Sep-15	54
CONSTRUCTION				319	21-Feb-15	19-Mar-16		241	21-Feb-15 A	19-Mar-16	371
Cost Centre A - General Preliminary				277	21-Feb-15	24-Nov-15		178	21-Feb-15 A	24-Nov-15	475
A3				150	21-Feb-15	20-Jul-15		51	21-Feb-15 A	20-Jul-15	100
01121.15140	A3 - Specified Plans - Implementation with Satisfactory from Engineer			150	21-Feb-15	20-Jul-15	100	51	21-Feb-15 A	20-Jul-15	100
A4				230	09-Apr-15	24-Nov-15		178	09-Apr-15 A	24-Nov-15	475
01121.15150	A4 - Specified Plans - Implementation with Satisfactory from Engineer			125	21-Jul-15	22-Nov-15	100	125	21-Jul-15	22-Nov-15	100
01121.15160	A4 - Programming Management System - Implementation with Satisfactory from Engineer			230	09-Apr-15	24-Nov-15	284	178	09-Apr-15 A	24-Nov-15	284
01121.15170	A4 - NOV Submission Schedule for ABWF - Prepare, Submit and Approve			125	21-Jul-15	22-Nov-15	477	125	21-Jul-15	22-Nov-15	477
01121.15190	A4 - NOV Submission Schedule for BS - Prepare, Submit and Approve			125	21-Jul-15	22-Nov-15	477	125	21-Jul-15	22-Nov-15	477
Cost Centre B - North Ventilation Building NOV				0	31-Aug-15	31-Aug-15		0	31-Aug-15	31-Aug-15	27
NOV Site Preparation Works				0	31-Aug-15	31-Aug-15		0	31-Aug-15	31-Aug-15	27
01121.23660	NOV - Complete Diversion of Existing Cooling Main and Hand Over of Site by 1112 to 1121			0	31-Aug-15		27	0	31-Aug-15		27
01121.23940	NOV - Complete Permanent Road Work of HHS EVA by 1112 and Hand Over to 1121			0	31-Aug-15		27	0	31-Aug-15		27
Cost Centre C - Hung Hom Cut and Cover Tunnels				183	04-Jun-15	12-Jan-16		94	25-Apr-15 A	19-Sep-15	89
HUH Submerged Tunnel (Area B)				183	04-Jun-15	12-Jan-16		94	25-Apr-15 A	19-Sep-15	89
HUH Area B - Temporary Marine Platforms and Wing Wall Outside Bypass				96	04-Jun-15	25-Sep-15		91	25-Apr-15 A	19-Sep-15	89
01121.25360	HUH Area B - [LOA] 2015 HK Dragon Boat Carnival			5	04-Jun-15	09-Jun-15	0	5	04-Jun-15	09-Jun-15	0
HUH Area B - Working Platforms A1 (West)				8	15-Jun-15	24-Jun-15		0	25-Apr-15 A	31-May-15 A	



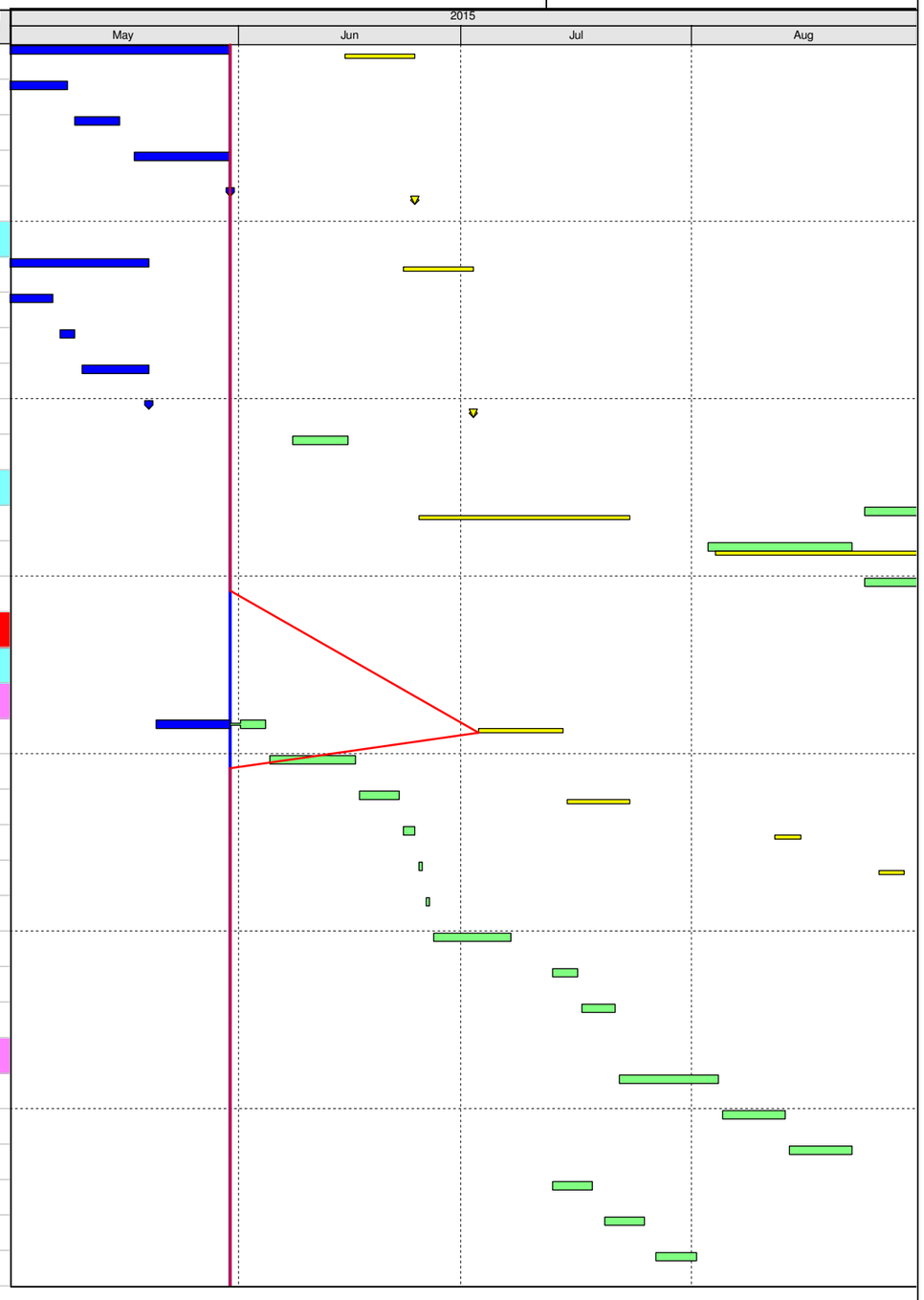
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.10520	HUH Area B - [Summary] construct Platform A1			8	15-Jun-15	24-Jun-15	6	0	25-Apr-15 A	31-May-15 A	
01121.10520-10	HUH Area B - Platform A1 - install steel beam (Type B1)			0				0	25-Apr-15 A	09-May-15 A	
01121.10520-20	HUH Area B - Platform A1 - install steel beam (Type B2)			0				0	10-May-15 A	16-May-15 A	
01121.10520-30	HUH Area B - Platform A1 - install steel plate deck			0				0	18-May-15 A	31-May-15 A	
01121.10590	HUH Area B - Platform A1 completed			0		24-Jun-15	6	0		31-May-15 A	
HUH Area B - Working Platforms A2 (East)				8	23-Jun-15	02-Jul-15		7	25-Apr-15 A	15-Jun-15	15
01121.10540	HUH Area B - [Summary] construct Platform A2			8	23-Jun-15	02-Jul-15	0	0	25-Apr-15 A	20-May-15 A	
01121.10540-02	HUH Area B - Platform A2 - install steel beams (Type B1)			0				0	25-Apr-15 A	07-May-15 A	
01121.10540-10	HUH Area B - Platform A2 - install steel beams (Type B2)			0				0	08-May-15 A	10-May-15 A	
01121.10540-20	HUH Area B - Platform A2 - install steel plate deck			0				0	11-May-15 A	20-May-15 A	
01121.10620	HUH Area B - Platform A2 completed			0		02-Jul-15	0	0		20-May-15 A	
01121.11010-10	HUH Area B - Platform A1 & A2 - install inclinometer	2 nos.		0				7	08-Jun-15	15-Jun-15	15
HUH Area B - Wing Walls				79	25-Jun-15	25-Sep-15		42	03-Aug-15	19-Sep-15	89
01121.19360	HUH Area B - Stage 5-6 - install wing wall pipe pile (West side) (12 nos.)	12 nos.		24	25-Jun-15	23-Jul-15	26	24	24-Aug-15	19-Sep-15	89
01121.19370	HUH Area B - Stage 6-4 - install wing wall pipe pile (East side) (14 nos.)	14 nos.		28	04-Aug-15	04-Sep-15	26	18	03-Aug-15	22-Aug-15	37
01121.19390	HUH Area B - install wing wall sheet pile (East side)			18	05-Sep-15	25-Sep-15	26	18	24-Aug-15	12-Sep-15	37
HUH Area B - HUH Temp Cofferdam				160	03-Jul-15	12-Jan-16		78	21-May-15 A	01-Sep-15	81
HUH Area B - (B1) Piling Platform & Cofferdam				122	03-Jul-15	25-Nov-15		70	21-May-15 A	22-Aug-15	89
HUH Area B - (B1) Temp Piling Platform				74	03-Jul-15	26-Sep-15		42	21-May-15 A	21-Jul-15	89
01121.24925	HUH Area B (B1 outside bypass) - Plant mobilization			10	03-Jul-15	14-Jul-15	49	4	21-May-15 A	04-Jun-15	14
01121.24925-10	HUH Area B (B1 outside bypass) - install reaction piles (6 nos.)	6 nos.		0				10	05-Jun-15	16-Jun-15	14
01121.24930	HUH Area B (B1 outside bypass) - Stage 1-1 - Install pipe pile (4 nos.)	4 nos.		8	15-Jul-15	23-Jul-15	49	4	17-Jun-15	22-Jun-15	14
01121.24960	HUH Area B (B1 outside bypass) - Stage 1-2 - Install pipe pile (2 nos.)	2 nos.		4	12-Aug-15	15-Aug-15	49	2	23-Jun-15	24-Jun-15	14
01121.24990	HUH Area B (B1 outside bypass) - Stage 1-3 - Install pipe pile (2 nos.)	2 nos.		4	26-Aug-15	29-Aug-15	49	1	25-Jun-15	25-Jun-15	14
01121.24990-05	HUH Area B (B1 outside bypass) - Stage 3 - mobilization for installing pipe pile			0				1	26-Jun-15	26-Jun-15	14
01121.24990-10	HUH Area B (B1 outside bypass) - Stage 3 - Install pipe pile (7 nos.)	7 nos.		0				8	27-Jun-15	07-Jul-15	14
01121.25020	HUH Area B (B1 outside bypass) - Stage 5-1 - Install pipe pile (2 nos.)	2 nos.		4	09-Sep-15	12-Sep-15	83	4	13-Jul-15	16-Jul-15	89
01121.25050	HUH Area B (B1 outside bypass) - Stage 5-2 - Install pipe pile (2 nos.)	2 nos.		4	23-Sep-15	26-Sep-15	83	4	17-Jul-15	21-Jul-15	89
HUH Area B - (B1) Pipe Pile and Sheetpile Cofferdam				40	09-Oct-15	25-Nov-15		36	13-Jul-15	22-Aug-15	89
01121.25080	HUH Area B (B1 outside bypass) - Stage 5-3 - install pipe pile (8 nos.)	8 nos.		12	09-Oct-15	23-Oct-15	83	12	22-Jul-15	04-Aug-15	89
01121.25090	HUH Area B (B1 outside bypass) - Stage 5-4 - install pipe pile (4 nos.)	4 nos.		8	24-Oct-15	02-Nov-15	83	8	05-Aug-15	13-Aug-15	89
01121.25100	HUH Area B (B1 outside bypass) - Stage 5-5 - install pipe pile (4 nos.)	4 nos.		8	03-Nov-15	11-Nov-15	83	8	14-Aug-15	22-Aug-15	89
01121.25110	HUH Area B (B1 outside bypass) - Stage 6-1 - install pipe pile (4 nos.)	4 nos.		6	12-Nov-15	18-Nov-15	83	6	13-Jul-15	18-Jul-15	37
01121.25120	HUH Area B (B1 outside bypass) - Stage 6-2 - install pipe pile (4 nos.)	4 nos.		6	19-Nov-15	25-Nov-15	83	6	20-Jul-15	25-Jul-15	37
01121.25120-10	HUH Area B (B1 outside bypass) - Stage 6-3 - install pipe pile (4 nos.)	4 nos.		0				6	27-Jul-15	01-Aug-15	37



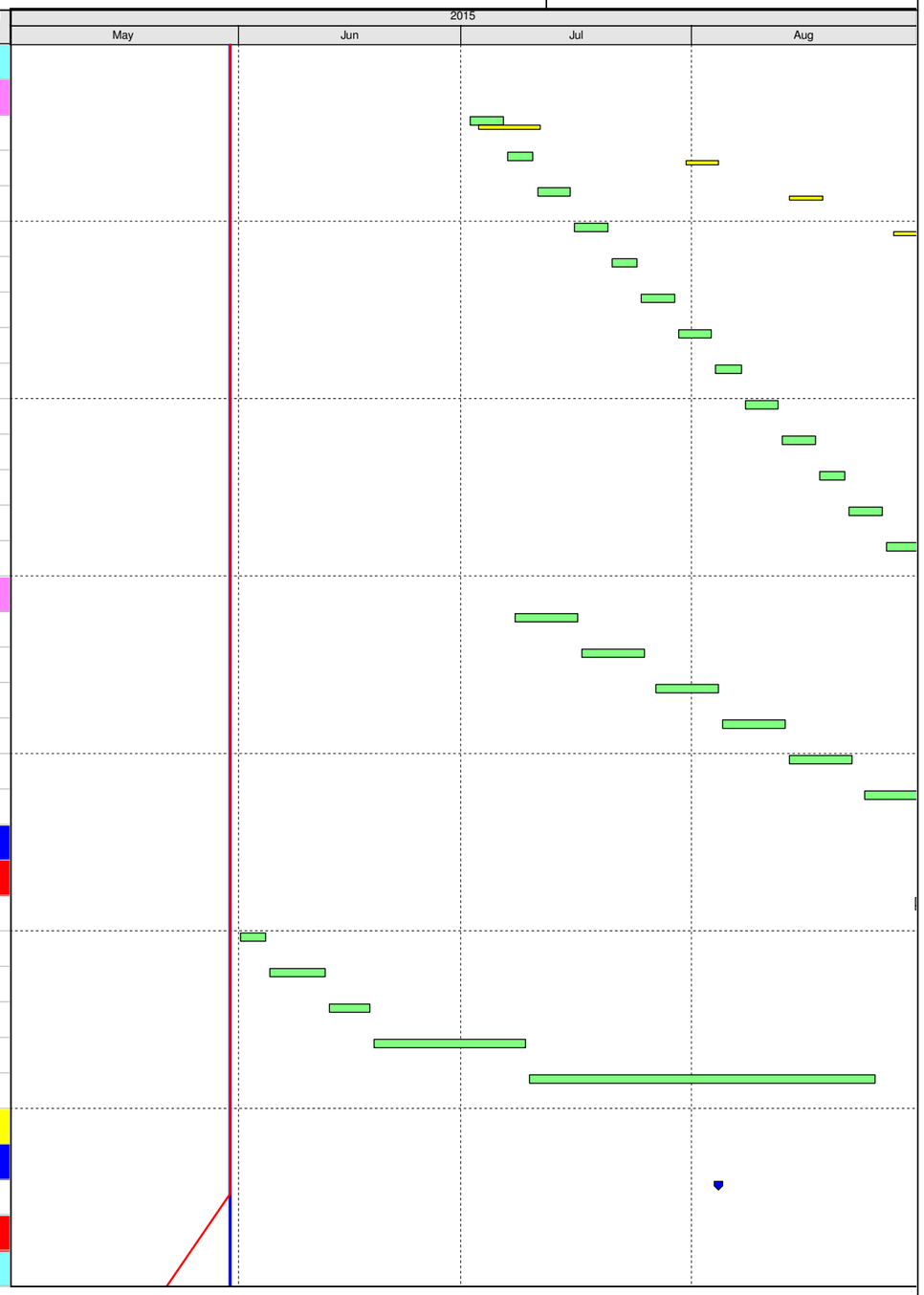
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
HUH Area B - (B2) Piling Platform & Cofferdam				160	03-Jul-15	12-Jan-16		53	02-Jul-15	01-Sep-15	28
HUH Area B - (B2) Temp Piling Platform				160	03-Jul-15	12-Jan-16		52	02-Jul-15	31-Aug-15	29
01121.21600	HUH Area B (B2 under bypass) - Stage 2-1 - Install pipe pile (2 nos.)	2 nos.		8	03-Jul-15	11-Jul-15	0	4	02-Jul-15	06-Jul-15	29
01121.21630	HUH Area B (B2 under bypass) - Stage 2-2 - Install pipe pile (2 nos.)	2 nos.		4	31-Jul-15	04-Aug-15	0	4	07-Jul-15	10-Jul-15	29
01121.21660	HUH Area B (B2 under bypass) - Stage 2-3 - Install pipe pile (2 nos.)	2 nos.		4	14-Aug-15	18-Aug-15	0	4	11-Jul-15	15-Jul-15	29
01121.21690	HUH Area B (B2 under bypass) - Stage 2-4 - Install pipe pile (2 nos.)	2 nos.		4	28-Aug-15	01-Sep-15	0	4	16-Jul-15	20-Jul-15	29
01121.21720	HUH Area B (B2 under bypass) - Stage 2-5 - Install pipe pile (2 nos.)	2 nos.		4	11-Sep-15	15-Sep-15	0	4	21-Jul-15	24-Jul-15	29
01121.21750	HUH Area B (B2 under bypass) - Stage 2-6 - Install pipe pile (2 nos.)	2 nos.		4	25-Sep-15	30-Sep-15	0	4	25-Jul-15	29-Jul-15	29
01121.21780	HUH Area B (B2 under bypass) - Stage 2-7 - Install pipe pile (2 nos.)	2 nos.		4	12-Oct-15	15-Oct-15	0	4	30-Jul-15	03-Aug-15	29
01121.21820	HUH Area B (B2 under bypass) - Stage 2-8 - Install pipe pile (2 nos.)	2 nos.		4	27-Oct-15	30-Oct-15	0	4	04-Aug-15	07-Aug-15	29
01121.21850	HUH Area B (B2 under bypass) - Stage 2-9 - Install pipe pile (2 nos.)	2 nos.		4	10-Nov-15	13-Nov-15	0	4	08-Aug-15	12-Aug-15	29
01121.21880	HUH Area B (B2 under bypass) - Stage 2-10 - Install pipe pile (2 nos.)	2 nos.		4	24-Nov-15	27-Nov-15	0	4	13-Aug-15	17-Aug-15	29
01121.21920	HUH Area B (B2 under bypass) - Stage 2-11 - Install pipe pile (2 nos.)	2 nos.		4	08-Dec-15	11-Dec-15	0	4	18-Aug-15	21-Aug-15	29
01121.21950	HUH Area B (B2 under bypass) - Stage 2-12 - Install pipe pile (2 nos.)	2 nos.		4	22-Dec-15	28-Dec-15	0	4	22-Aug-15	26-Aug-15	29
01121.21980	HUH Area B (B2 under bypass) - Stage 2-13 - Install pipe pile (2 nos.)	2 nos.		4	08-Jan-16	12-Jan-16	0	4	27-Aug-15	31-Aug-15	29
HUH Area B - (B2) Pipe Pile and Sheetpile Cofferdam				64	16-Oct-15	02-Jan-16		48	08-Jul-15	01-Sep-15	14
01121.22090	HUH Area B (B2 under bypass) - Stage 4-1 - install pipe pile (4 nos.)	4 nos.		8	16-Oct-15	26-Oct-15	30	8	08-Jul-15	16-Jul-15	14
01121.22100	HUH Area B (B2 under bypass) - Stage 4-2 - install pipe pile (4 nos.)	4 nos.		8	27-Oct-15	04-Nov-15	30	8	17-Jul-15	25-Jul-15	14
01121.22110	HUH Area B (B2 under bypass) - Stage 4-3 - install pipe pile (4 nos.)	4 nos.		8	10-Nov-15	18-Nov-15	26	8	27-Jul-15	04-Aug-15	14
01121.22130	HUH Area B (B2 under bypass) - Stage 4-4 - install pipe pile (4 nos.)	4 nos.		8	24-Nov-15	02-Dec-15	22	8	05-Aug-15	13-Aug-15	14
01121.22140	HUH Area B (B2 under bypass) - Stage 4-5 - install pipe pile (4 nos.)	4 nos.		8	08-Dec-15	16-Dec-15	18	8	14-Aug-15	22-Aug-15	14
01121.22150	HUH Area B (B2 under bypass) - Stage 4-6 - install pipe pile (4 nos.)	4 nos.		8	22-Dec-15	02-Jan-16	14	8	24-Aug-15	01-Sep-15	14
HUH Land base Tunnel (Area C)				12	31-Aug-15	12-Sep-15		88	01-Jun-15	12-Sep-15	3
HUH Area C - Ground Investigations				12	31-Aug-15	12-Sep-15		88	01-Jun-15	12-Sep-15	3
01121.12415	HUH Area C - Ground Investigation Before Piling on Land (1st portion)			12	31-Aug-15	12-Sep-15	3	12	31-Aug-15	12-Sep-15	3
01121.12980-10	HUH Area C - U/U detection			0				4	01-Jun-15	04-Jun-15	19
01121.12990-05	HUH Area C - Jet Grout - plant mobilization			0				7	05-Jun-15	12-Jun-15	19
01121.12990-10	HUH Area C - Jet Grout - remove ex. pavement			0				5	13-Jun-15	18-Jun-15	19
01121.12990-20	HUH Area C - Jet Grout - divert ex. ug utilities prior to jet grout			0				16	19-Jun-15	09-Jul-15	19
01121.12990-30	HUH Area C - Jet Grout - apply jet grout adjacent to FHOB			0				40	10-Jul-15	25-Aug-15	19
Cost centre D - Immersed Tunnels				266	04-Mar-15	23-Jan-16		108	02-Mar-15 A	08-Oct-15	101
Site Preparation at Shek O				186	04-Mar-15	17-Oct-15		108	02-Mar-15 A	08-Oct-15	32
01121.23680	Shek O - Basin Dewatering and Drying Completed (Milestone D2)			0		03-Sep-15	5	0		04-Aug-15	31
Shek O Site Offices, Haul Road and Temp Site Drainage (outside basin)				155	13-Mar-15	18-Sep-15		73	16-Mar-15 A	26-Aug-15	67
Site office and Utilities				60	13-Mar-15	28-May-15		25	16-Mar-15 A	30-Jun-15	23



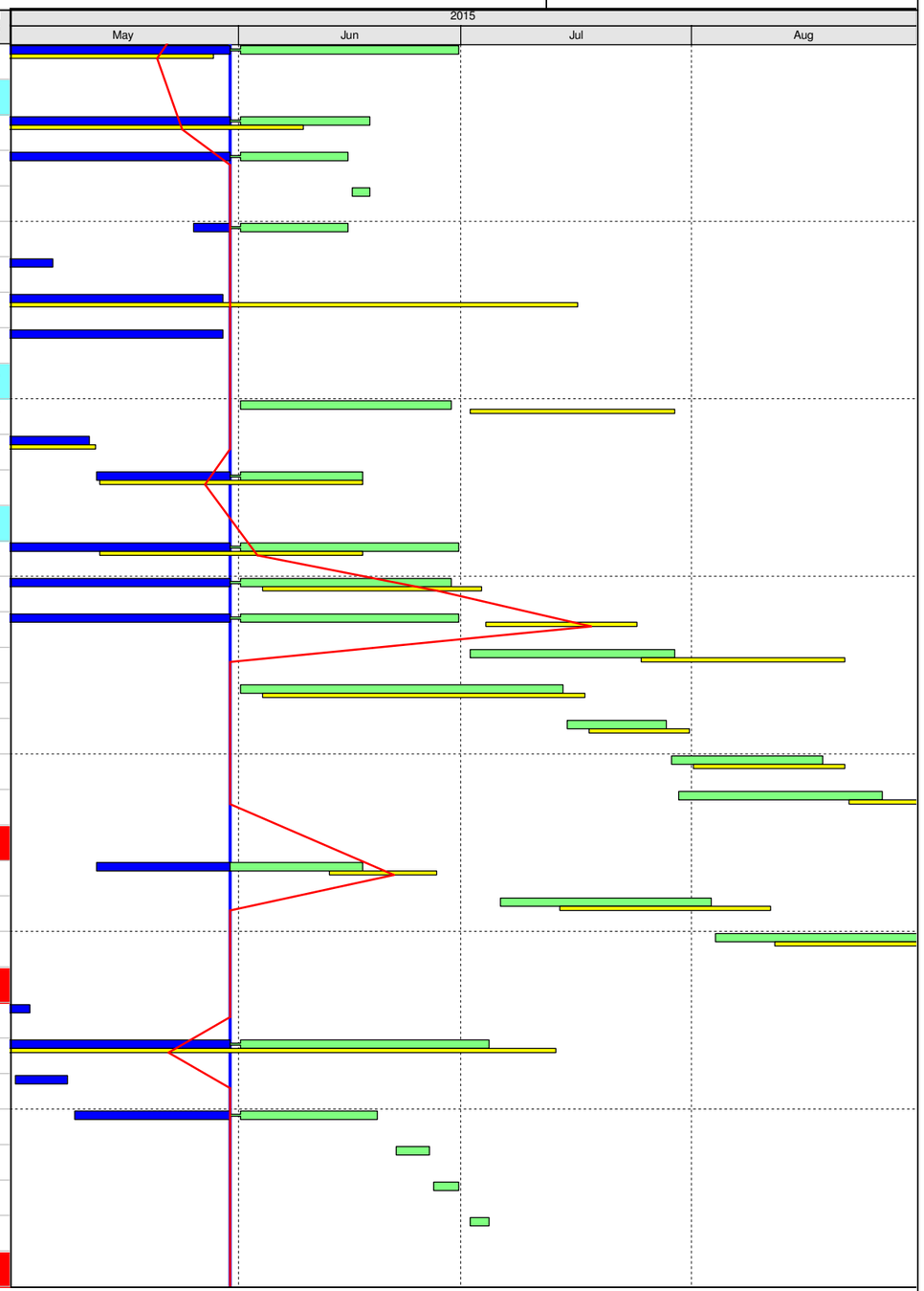
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.21200	Shek O (outside basin) - Construct Site Offices (Milestone D1)			60	13-Mar-15	28-May-15	18	25	16-Mar-15 A	30-Jun-15	23
Power Supply and Water Supply				75	16-Apr-15	16-Jul-15		16	17-Mar-15 A	18-Jun-15	44
01121.21420	Shek O (outside basin) - Power Supply - (summary) erect pillars			45	16-Apr-15	09-Jun-15	52	16	30-Mar-15 A	18-Jun-15	44
01121.21420-06	Shek O (outside basin) - Power Supply - delivery of containers, transformers			0				13	01-May-15 A	15-Jun-15	23
01121.21420-10	Shek O (outside basin) - Power Supply - Positioning of containers			0				3	16-Jun-15	18-Jun-15	23
01121.21420-12	Shek O (outside basin) - Power Supply - Positioning of HV switch boxes			0				13	26-May-15 A	15-Jun-15	26
01121.21420-14	Shek O (outside basin) - Power Supply - Positioning of HV transformer			0				0	01-May-15 A	07-May-15 A	
01121.21440	Shek O (outside basin) - Water Supply - (summary) installation			70	22-Apr-15	16-Jul-15	22	0	17-Mar-15 A	30-May-15 A	
01121.21440-42	Shek O (outside basin) - Water Supply - installation of pipes and accessories networks			0				0	27-Apr-15 A	30-May-15 A	
Accesses, Ramps and Storage Areas				94	02-Apr-15	29-Jul-15		24	30-Mar-15 A	29-Jun-15	116
01121.21550	Shek O (outside basin) - Site Formation (above sea level)			24	02-Jul-15	29-Jul-15	91	24	01-Jun-15	29-Jun-15	116
01121.23348	Shek O (outside basin) - Ramp 1 Preparation (Road 1 from Storage Area to Barging Pt) (1st portion)			30	02-Apr-15	12-May-15	20	0	30-Mar-15 A	12-May-15 A	
01121.23350	Shek O (outside basin) - Ramp 1 Preparation (Road 1 from Storage Area to Barging Pt) (Milestone D1)(remaining portion)			30	13-May-15	17-Jun-15	20	15	13-May-15 A	17-Jun-15	20
Temporary Site Drainage System (outside basin)				108	13-May-15	18-Sep-15		73	01-Apr-15 A	26-Aug-15	67
01121.22970	Shek O Drainage (outside basin) - Install U Channel & Drainage Pits along Road 1 + Outlet 3 (By the Jetty)			30	13-May-15	17-Jun-15	125	25	01-Apr-15 A	30-Jun-15	115
01121.22980	Shek O Drainage (outside basin) - Install U Channel & Drainage Pits Around Batching Plant Area			24	04-Jun-15	03-Jul-15	47	24	27-Apr-15 A	29-Jun-15	116
01121.22990	Shek O Drainage (outside basin) - Install U Channel & Drainage Pits Around the Storage Area			18	04-Jul-15	24-Jul-15	47	25	20-Apr-15 A	30-Jun-15	67
01121.23000	Shek O Drainage (outside basin) - Install U Channel & Drainage Pipe from Storage Aread to Outlet 1			24	25-Jul-15	21-Aug-15	47	24	02-Jul-15	29-Jul-15	67
01121.23030	Shek O Drainage (outside basin) - Fabricate/Install Deck Above Existing Rock Channel both Sides of Storage Area			36	04-Jun-15	17-Jul-15	71	36	01-Jun-15	14-Jul-15	74
01121.23050	Shek O Drainage (outside basin) - Fabricate/Install Deck Above Existing Rock Channel at Intersection with Road 1			12	18-Jul-15	31-Jul-15	71	12	15-Jul-15	28-Jul-15	74
01121.23070	Shek O Drainage (outside basin) - Fabricate/Install Main Rain Water 4 Drain Pits at the Base of Existing Rock Channel			18	01-Aug-15	21-Aug-15	71	18	29-Jul-15	18-Aug-15	74
01121.23090	Shek O Drainage (outside basin) - Install U Channel & Drainage Pits along the East side + Outlet 2			24	22-Aug-15	18-Sep-15	47	24	30-Jul-15	26-Aug-15	67
Concrete Batching Plant				74	13-Jun-15	09-Sep-15		78	13-May-15 A	01-Sep-15	7
01121.15845	Shek O batching plant - footing construction			15	13-Jun-15	27-Jun-15	16	18	13-May-15 A	17-Jun-15	26
01121.21560	Shek O batching plant - Install Batching Plant and Ancilliaries (Milestone D1)			25	14-Jul-15	11-Aug-15	0	25	06-Jul-15	03-Aug-15	7
01121.22570	Shek O batching plant - Commissioning of Batching Plant and Water Recycle/Treatment			25	12-Aug-15	09-Sep-15	0	25	04-Aug-15	01-Sep-15	7
Barge Offloading Facilities				105	04-Mar-15	13-Jul-15		28	02-Mar-15 A	04-Jul-15	7
01121.22517	Shek O Barging Point - Set Up stock pile area near barging point			45	04-Mar-15	29-Apr-15	0	0	02-Mar-15 A	04-May-15 A	
01121.22520	Shek O Barging Point - (Summary) Construct barging point			60	30-Apr-15	13-Jul-15	0	28	17-Apr-15 A	04-Jul-15	7
01121.22520-04	Shek O Barging Point - placing leveling concrete bags			0				0	02-May-15 A	09-May-15 A	
01121.22520-08	Shek O Barging Point - seawall block installation	404 nos.	250 nos.	0				17	10-May-15 A	19-Jun-15	7
01121.22520-12	Shek O Barging Point - install TACOM MAT on existing seabed behind seawall	700 m2		0				5	22-Jun-15	26-Jun-15	7
01121.22520-22	Shek O Barging Point - rock fill	6000 m3		0				3	27-Jun-15	30-Jun-15	7
01121.22520-32	Shek O Barging Point - concrete paving and remaining fitting works			0				3	02-Jul-15	04-Jul-15	7
Casting Basin Dewatering and Preparation				138	05-May-15	17-Oct-15		108	24-Mar-15 A	08-Oct-15	32



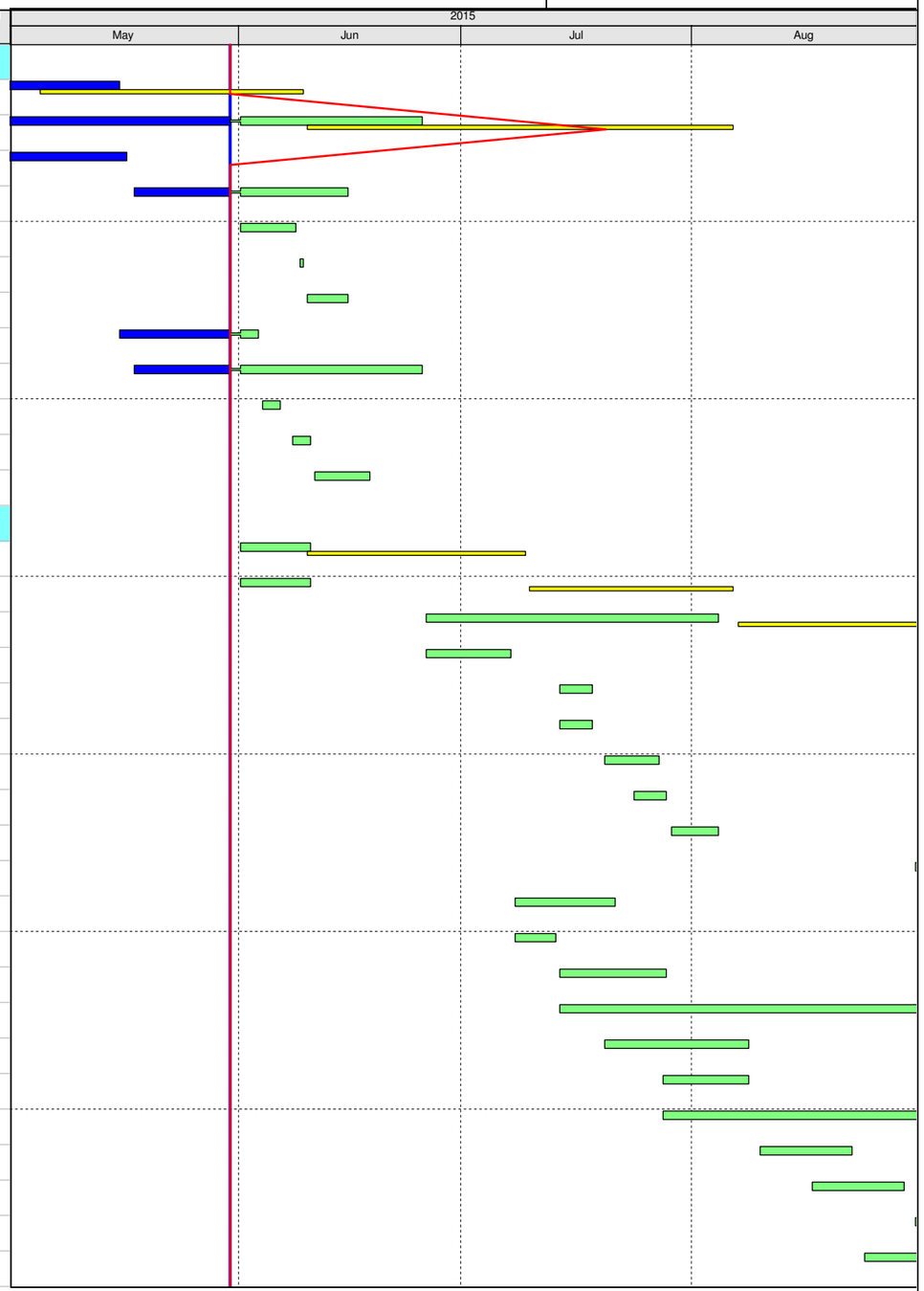
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
Dock Gate Construction				78	05-May-15	06-Aug-15		21	24-Mar-15 A	25-Jun-15	18
01121.21510	Shek O Dock Gate - Install concrete block at North			30	05-May-15	09-Jun-15	2	0	24-Mar-15 A	16-May-15 A	
01121.21580	Shek O Dock Gate - (summary) Install Sheet Piles cut off wall (Incl grouting) (120 sheet piles)			48	10-Jun-15	06-Aug-15	2	21	30-Apr-15 A	25-Jun-15	18
01121.21580-01	Shek O Dock Gate (south) - install side guide / sheet piles cut off wall			0				0	30-Apr-15 A	17-May-15 A	
01121.21580-03	Shek O Dock Gate (south) - install sluice gate	2 nos.		0				13	18-May-15 A	15-Jun-15	26
01121.21580-13	Shek O Dock Gate (south) - fixing sheetpile top position			0				7	01-Jun-15	08-Jun-15	26
01121.21580-23	Shek O Dock Gate (south) - concreting sheetpile toe			0				1	09-Jun-15	09-Jun-15	26
01121.21580-33	Shek O Dock Gate (south) - gravel backfill behind sheetpile			0				5	10-Jun-15	15-Jun-15	26
01121.21580-52	Shek O Dock Gate (north) - install side guide / sheet piles cut off wall			0				3	16-May-15 A	03-Jun-15	23
01121.21580-54	Shek O Dock Gate (north) - install sluice gate	2 nos.		0				21	18-May-15 A	25-Jun-15	18
01121.21580-64	Shek O Dock Gate (north) - fixing sheetpile top position			0				3	04-Jun-15	06-Jun-15	23
01121.21580-74	Shek O Dock Gate (north) - concreting sheetpile toe			0				3	08-Jun-15	10-Jun-15	23
01121.21580-84	Shek O Dock Gate (north) - gravel backfill behind sheetpile			0				7	11-Jun-15	18-Jun-15	23
Dewatering, Leveling				107	10-Jun-15	16-Oct-15		108	01-Jun-15	08-Oct-15	32
01121.21520	Shek O Dewatering & Site Formation - Install Water Pumps (used for Basin Dewatering and Drainage System)			24	10-Jun-15	09-Jul-15	2	9	01-Jun-15	10-Jun-15	30
01121.21530	Shek O Dewatering & Site Formation - Install Water Filtration Unit (Filter Basin Water before Discharge in the Sea)			24	10-Jul-15	06-Aug-15	2	9	01-Jun-15	10-Jun-15	30
01121.21540	Shek O Dewatering & Site Formation (2 Stages)			24	07-Aug-15	03-Sep-15	2	33	26-Jun-15	04-Aug-15	18
01121.21540-10	Shek O Dewatering - Stage 1 dewatering			0				9	26-Jun-15	07-Jul-15	18
01121.21540-20	Shek O Dewatering - construct sedimentation tank after stage 1 dewatering			0				5	14-Jul-15	18-Jul-15	32
01121.21540-30	Shek O Dewatering - setup for stage 2 dewatering			0				5	14-Jul-15	18-Jul-15	32
01121.21540-40	Shek O Dewatering - Stage 2 dewatering			0				7	20-Jul-15	27-Jul-15	32
01121.21540-50	Shek O Dewatering - setup for stage 2 dewatering			0				4	24-Jul-15	28-Jul-15	48
01121.21540-60	Shek O Dewatering - Stage 3 dewatering			0				6	29-Jul-15	04-Aug-15	48
01121.21585	Shek O Dewatering & Site Formation - Rock fill to level the south pocket (to remaining 0.5m thick) (1st portion)			14	04-Sep-15	19-Sep-15	6	14	31-Aug-15	15-Sep-15	10
01121.23670	Shek O (outside basin) - Construct Ramp 2 (After stage 1 Dewatering of the Basin)			18	04-Sep-15	24-Sep-15	2	12	08-Jul-15	21-Jul-15	18
01121.23945	Shek O - Geographic Survey / Rock Mapping (1st portion)			11	04-Sep-15	16-Sep-15	2	5	08-Jul-15	13-Jul-15	18
01121.23950	Shek O - Geographic Survey / Rock Mapping (remaining portion)			13	17-Sep-15	03-Oct-15	24	13	14-Jul-15	28-Jul-15	80
01121.24350	Shek O Dewatering & Site Formation - Final Site Preparation, Surface Smoothing and Leveling			24	17-Sep-15	16-Oct-15	2	73	14-Jul-15	08-Oct-15	18
01121.24350-10	Shek O Site formation after dewatering - (Area A) grading work, trench excavation			0				18	20-Jul-15	08-Aug-15	32
01121.24350-20	Shek O Site formation after dewatering - (Area A) utilities installation			0				11	28-Jul-15	08-Aug-15	61
01121.24350-30	Shek O Site formation after dewatering - (Area A) concrete paving	2600m3		0				32	28-Jul-15	02-Sep-15	61
01121.24350-40	Shek O Site formation after dewatering - (Area B) grading work, trench excavation			0				12	10-Aug-15	22-Aug-15	32
01121.24350-50	Shek O Site formation after dewatering - (Area B) utilities installation			0				12	17-Aug-15	29-Aug-15	44
01121.24350-60	Shek O Site formation after dewatering - (Area B) concrete paving	2300m3		0				20	31-Aug-15	22-Sep-15	44
01121.24350-70	Shek O Site formation after dewatering - (Area C) grading work, trench excavation			0				12	24-Aug-15	05-Sep-15	32



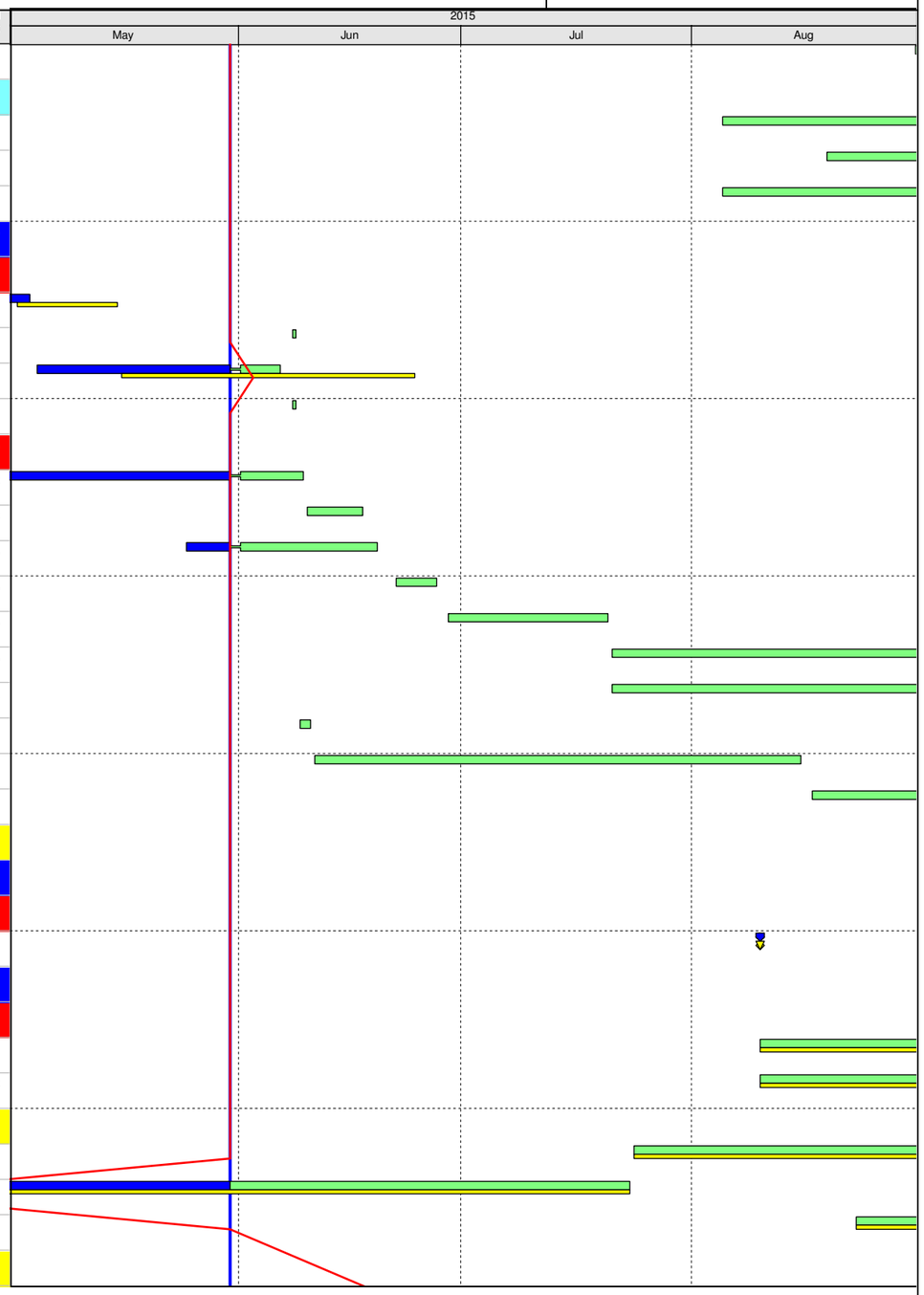
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
01121.24350-80	Shek O Site formation after dewatering - (Area C) utilities installation			0				12	31-Aug-15	12-Sep-15	32
Temp Drainage System for Fabrication Basin (inside basin)				36	04-Sep-15	17-Oct-15		36	05-Aug-15	15-Sep-15	38
01121.24280	Shek O Drainage (inside basin) - Install Drain Pipes around IMTs Bedding Areas			36	04-Sep-15	17-Oct-15	5	36	05-Aug-15	15-Sep-15	31
01121.24290	Shek O Drainage (inside basin) - Install Ditch around IMTs Bedding Areas and Connect to Drain Pipes			24	18-Sep-15	17-Oct-15	5	24	19-Aug-15	15-Sep-15	31
01121.24300	Shek O Drainage (inside basin) - Install Main U Channel at Yard Perimeter			36	04-Sep-15	17-Oct-15	12	36	05-Aug-15	15-Sep-15	38
IMT Marine Works in Victoria Harbour				220	02-May-15	23-Jan-16		83	31-Mar-15 A	07-Sep-15	126
IMT Trial Dredging (IMT6) and Advanced Dredging (IMT1)				44	02-May-15	24-Jun-15		7	22-Apr-15 A	08-Jun-15	47
01121.13980	IMT - trial dredging at IMT6 area			12	02-May-15	15-May-15	105	0	22-Apr-15 A	04-May-15 A	
01121.13980-06	IMT - trial dredging at IMT6 - final survey			0				1	08-Jun-15	08-Jun-15	47
01121.13985	IMT - Advanced dredging at IMT1 area	26,000 m3	15,050 m3	32	16-May-15	24-Jun-15	105	6	05-May-15 A	06-Jun-15	47
01121.13985-02	IMT - Advance dredging at IMT1 - final survey			0				1	08-Jun-15	08-Jun-15	47
IMT Bulk Dredging				54	19-Nov-15	23-Jan-16		83	31-Mar-15 A	07-Sep-15	126
01121.22770-02	IMT - mainre SI (CPT) - sub-letting			0				8	31-Mar-15 A	09-Jun-15	128
01121.22770-12	IMT - marine SI (CPT) - prepare and submit method statement			0				7	10-Jun-15	17-Jun-15	128
01121.22770-22	IMT - marine SI (CPT) - MDN application			0				17	25-May-15 A	19-Jun-15	126
01121.22770-32	IMT - marine SI (CPT) - plant mobilization			0				6	22-Jun-15	27-Jun-15	126
01121.22775	IMT - bulk dredging - Marine SI (1st portion)	30 nos.		18	19-Nov-15	09-Dec-15	13	18	29-Jun-15	20-Jul-15	126
01121.22780	IMT - bulk dredging - Marine SI (remaining portion)	49 nos.		32	10-Dec-15	19-Jan-16	17	42	21-Jul-15	07-Sep-15	126
01121.22785	IMT - bulk dredging - Install/Monitor Silt Screen at Existing Seawater Intakes (1st portion)			36	10-Dec-15	23-Jan-16	13	36	21-Jul-15	31-Aug-15	132
01121.22840-02	IMT - Rock Breaking - finalise rock quantity and methodology			0				2	09-Jun-15	10-Jun-15	47
01121.22840-12	IMT - Rock Breaking - sub-letting for rock breaking			0				55	11-Jun-15	15-Aug-15	47
01121.22840-22	IMT - Rock Breaking - plant mobilization			0				14	17-Aug-15	01-Sep-15	47
Cost Centre E - CBTS Tunnels				90	10-Aug-15	25-Nov-15		90	10-Aug-15	25-Nov-15	98
North Section at VH3A & VH3B (Outside Typhoon Shelter - Against Existing Breakwater Wall)				0	10-Aug-15	10-Aug-15		0	10-Aug-15	10-Aug-15	38
Temporary Reclamation				0	10-Aug-15	10-Aug-15		0	10-Aug-15	10-Aug-15	38
01121.12210	CBTS (VH3A & VH3B) - Possession of VH3A and VH3B			0	10-Aug-15		38	0	10-Aug-15		38
South Section at VH3C & VH3D (Inside Typhoon Shelter - Against Existig Breakwater Wall)				90	10-Aug-15	25-Nov-15		90	10-Aug-15	25-Nov-15	98
Temporary Reclamation				90	10-Aug-15	25-Nov-15		90	10-Aug-15	25-Nov-15	98
01121.12150	CBTS - Install Monitoring Instrumentation			90	10-Aug-15	25-Nov-15	38	90	10-Aug-15	25-Nov-15	38
01121.12170	CBTS (VH3C &VH3D) - Apply MDN			85	10-Aug-15	02-Nov-15	148	85	10-Aug-15	02-Nov-15	148
Cost Centre F - Associated Works				390	24-Feb-15	19-Mar-16		294	25-Apr-15 A	19-Mar-16	461
01121.15490	F1 - Complete Installation of All Instrumentation for Monitoring at Hung Hom			64	24-Jul-15	25-Sep-15	1924	64	24-Jul-15	25-Sep-15	16
01121.15500	F2 - Prepare and Submit Barging Facility Management Plan			150	24-Feb-15	23-Jul-15	491	54	25-Apr-15 A	23-Jul-15	16
01121.15510	F2 - Management, Maintenance and Operation of Barging Point Facility			210	23-Aug-15	19-Mar-16	461	210	23-Aug-15	19-Mar-16	461
Cost Centre G - RRIW				60	19-Jun-15	29-Aug-15		4	26-May-15 A	04-Jun-15	66



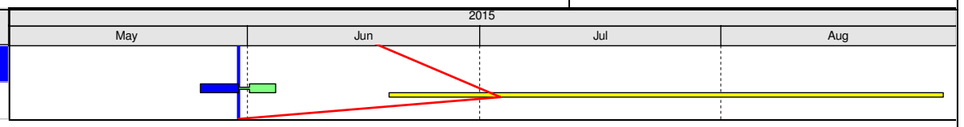
Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

Activity ID	Activity Name	Total Qty	Completed Qty	BL Dur	BL Start	BL Finish	BL Float	Rem. Dur.	Start	Finish	Total Float
Reprovisioning of Fender Pile				60	19-Jun-15	29-Aug-15		4	26-May-15 A	04-Jun-15	66
01121.10600	RRIW - HUH Area B - Fender Pile - Demolition/Removal of Existing Fender Piles			60	19-Jun-15	29-Aug-15	10	4	26-May-15 A	04-Jun-15	66



Data Date: 31-May-15

Current Milestone
Baseline Milestone
Actual Work
Critical Remaining Work
Remaining Work
Project Baseline
Remaining Le...

Updated 3M Rolling Programme (Jun - Aug 2015)
(Updated as of 31 May 2015)
(Ref. to PMP Rev. 1a)

Date	Revision	Checked	Approved
01-Jun-15		Vincent Yeung	K. Hatakeyama

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

Derived Action and Limit Levels for Water Quality (Wet Season)

Parameters	Action Level	Limit Level
WSD Salt Water Intake (Station 14, A, WSD9, WSD17)		
DO in mg/L	<2.1	<2
SS in mg/L	6.0	6.0
Turbidity in NTU	4.7	6.5
Cooling Water Intake (Station 8, 9, 21 & 34)		
DO in mg/L	2.8	2.7
SS in mg/L	6.9	9.1
Turbidity in NTU	11.3	17.2
GB3		
DO in mg/L	5.5	5.3
SS in mg/L	4.5	4.5
Turbidity in NTU	2.1	2.4

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Derived Action and Limit Levels for Water Quality (Dry Season)

Parameters	Action Level	Limit Level
WSD Salt Water Intake (Station 14, A, WSD9, WSD17)		
DO in mg/L	<2.1	<2
SS in mg/L	6.9	6.9
Turbidity in NTU	5.0	7.0
Cooling Water Intake (Station 8, 9, 21 & 34)		
DO in mg/L	3.3	3.2
SS in mg/L	8.0	10.4
Turbidity in NTU	12.2	18.5
GB3		
DO in mg/L	6.8	6.5
SS in mg/L	9.3	9.3
Turbidity in NTU	5.0	5.6

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

APPENDIX C
WATER QUALITY MONITORING SCHEDULE

Shatin to Central Link - Contract No. 1121
NSL Cross Harbour Tunnels
Water Quality Monitoring Schedule (May 2015)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-May	2-May
						Mid-Ebb 11:28 Mid-Flood 17:52
3-May	4-May	5-May	6-May	7-May	8-May	9-May
	Mid-Ebb 12:28 Mid-Flood 19:08		Mid-Flood 7:04 Mid-Ebb 13:39		Mid-Flood 8:12 Mid-Ebb 15:00	
10-May	11-May	12-May	13-May	14-May	15-May	16-May
	Mid-Flood 10:49 Mid-Ebb 17:53		Mid-Ebb 8:31 Mid-Flood 14:01		Mid-Ebb 10:17 Mid-Flood 16:20	
17-May	18-May	19-May	20-May	21-May	22-May	23-May
	Mid-Ebb 12:26 Mid-Flood 19:04		Mid-Flood 7:07 Mid-Ebb 13:51		Mid-Flood 8:18 Mid-Ebb 15:18	
24-May	**25-May**	26-May	27-May	28-May	29-May	30-May
		*Mid-Flood 11:43 Mid-Ebb 18:39		Mid-Ebb 9:26 *Mid-Flood 15:06		Mid-Ebb 10:31 Mid-Flood 16:58
31-May						

Water Quality Monitoring Stations
C1, C2, 9, 21, 34, A, WSD9, WSD17

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m
Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)
2) The reasons for choosing the monitoring day (i.e 26 and 28 May 2015) in which the tidal ranges are less than 0.5m include:
a) The tidal range of less than 0.5m occurs for 2 or more consecutive days
b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

Shatin to Central Link - Contract No. 1121
NSL Cross Harbour Tunnels
Tentative Water Quality Monitoring Schedule (June 2015)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun	6-Jun
	Mid-Ebb 11:29 Mid-Flood 18:19		Mid-Ebb 12:43 Mid-Flood 19:41		Mid-Flood 7:19 Mid-Ebb 14:07	
7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun	13-Jun
	Mid-Flood 9:45 Mid-Ebb 16:32		Mid-Flood 12:20 Mid-Ebb 18:47		Mid-Ebb 9:07 Mid-Flood 15:10	
14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	**20-Jun**
	Mid-Ebb 11:31 Mid-Flood 18:15		Mid-Ebb 12:55 Mid-Flood 19:52		Mid-Flood 7:20 Mid-Ebb 14:15	
21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
	Mid-Flood 9:10 Mid-Ebb 16:05		Mid-Flood* 10:26 Mid-Ebb 17:02		Mid-Ebb 8:15 Mid-Flood* 14:03	
28-Jun	29-Jun	30-Jun				
	Mid-Ebb 10:30 Mid-Flood 17:29					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Water Quality Monitoring Stations
C1, C2, 9, 21, 34, A, WSD9, WSD17

* indicates that the tidal range of individual flood or ebb tide is less than 0.5m
Remark: 1) Reference was made to the tidal information of Hong Kong Observatory (Quarry Bay Station)
2) The reasons for choosing the monitoring day (i.e 24 and 26 June 2015) in which the tidal ranges are less than 0.5m include:
a) The tidal range of less than 0.5m occurs for 2 or more consecutive days
b) In compliance with the requirement of (i) three days per week at mid-ebb and mid-flood tide and (ii) the interval between two sets of monitoring not less than 36 hours

APPENDIX D
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Water Quality Monitoring Results at 21 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	12:34	Surface	1	24.6 24.6	24.6	7.9 7.9	7.9	32.2 32.2	32.2	68.9 68.2	68.6	4.8 4.7	4.8	4.8	4.5 4.4	4.5	2.8	7 7	7.0	6.0
				Middle	3.5	24.6 24.5	24.6	7.9 7.9	7.9	31.5 32.2	31.9	66.1 67.7	66.9	4.6 4.7	4.7		1.9 1.8	1.9		7 7	7.0	
				Bottom	6	24.6 24.5	24.6	7.9 7.9	7.9	32.2 32.2	32.2	70.0 67.1	68.6	4.9 4.7	4.8	4.8	1.9 2.0	2.0		4 4	4.0	
4-May-15	Fine	Moderate	13:16	Surface	1	26.4 26.3	26.4	7.8 7.8	7.8	28.3 28.3	28.3	74.7 75.0	74.9	5.1 5.2	5.2	5.2	3.2 3.4	3.3	3.6	8 8	8.0	5.8
				Middle	3.5	25.6 25.5	25.6	8.0 8.0	8.0	28.6 28.7	28.7	74.4 74.6	74.5	5.2 5.2	5.2		3.8 3.7	3.8		5 5	5.0	
				Bottom	6	25.2 25.2	25.2	8.1 8.1	8.1	29.2 29.2	29.2	71.9 72.1	72.0	5.0 5.0	5.0	5.0	3.6 3.7	3.7		4 5	4.5	
6-May-15	Fine	Moderate	14:29	Surface	1	24.7 25.0	24.9	8.4 8.3	8.4	28.2 27.5	27.9	98.1 99.3	98.7	6.9 7.0	7.0	7.1	4.1 4.0	4.1	4.7	3 3	3.0	3.7
				Middle	3	24.8 24.8	24.8	8.0 8.3	8.2	27.5 27.9	27.7	100.1 99.1	99.6	7.1 7.0	7.1		4.1 3.9	4.0		4 4	4.0	
				Bottom	5	25.0 24.8	24.9	8.1 8.4	8.3	27.1 27.9	27.5	99.5 98.5	99.0	7.1 7.0	7.1	7.1	6.0 6.2	6.1		4 4	4.0	
8-May-15	Fine	Rough	15:52	Surface	1	25.4 25.3	25.4	8.1 8.1	8.1	31.8 31.1	31.5	81.2 81.0	81.1	5.6 5.6	5.6	5.6	4.1 4.1	4.1	4.8	4 5	4.5	4.3
				Middle	3	25.2 25.1	25.2	8.1 8.1	8.1	31.0 32.8	31.9	80.7 80.8	80.8	5.6 5.5	5.6		4.8 4.8	4.8		4 3	3.5	
				Bottom	5	25.2 25.4	25.3	8.2 8.1	8.2	31.9 32.7	32.3	78.7 78.9	78.8	5.4 5.4	5.4	5.4	5.4 5.6	5.5		5 5	5.0	
11-May-15	Fine	Moderate	18:49	Surface	1	24.9 24.8	24.9	7.0 7.0	7.0	26.2 26.4	26.3	94.4 93.7	94.1	6.7 6.7	6.7	6.1	4.0 4.1	4.1	3.6	5 6	5.5	5.3
				Middle	3	24.8 24.7	24.8	7.0 7.0	7.0	27.4 27.4	27.4	75.3 77.1	76.2	5.3 5.5	5.4		3.3 3.2	3.3		5 5	5.0	
				Bottom	5	24.5 24.6	24.6	6.9 7.0	7.0	28.4 28.5	28.5	67.4 65.6	66.5	4.8 4.6	4.7	4.7	3.3 3.4	3.4		5 6	5.5	
13-May-15	Sunny	Moderate	09:23	Surface	1	26.9 26.1	26.5	8.6 8.6	8.6	29.8 29.4	29.6	84.1 81.8	83.0	5.7 5.6	5.7	5.7	3.6 3.5	3.6	3.8	4 3	3.5	4.2
				Middle	3	27.3 27.0	27.2	8.6 8.7	8.7	28.5 29.6	29.1	86.7 81.3	84.0	5.9 5.5	5.7		4.2 3.9	4.1		5 5	5.0	
				Bottom	5	26.5 27.1	26.8	8.6 8.6	8.6	30.2 30.6	30.4	82.1 85.3	83.7	5.6 5.7	5.7	5.7	3.7 3.4	3.6		4 4	4.0	
15-May-15	Fine	Moderate	11:06	Surface	1	25.6 25.4	25.5	8.1 8.1	8.1	26.8 26.2	26.5	85.2 82.7	84.0	6.0 5.9	6.0	6.0	4.0 3.9	4.0	6.3	3 3	3.0	4.2
				Middle	3	25.6 25.7	25.7	8.2 8.2	8.2	26.6 27.2	26.9	85.5 84.1	84.8	6.0 5.9	6.0		5.2 5.8	5.5		5 5	5.0	
				Bottom	5	25.4 25.7	25.6	8.1 8.1	8.1	27.8 27.8	27.8	78.9 81.8	80.4	5.5 5.7	5.6	5.6	9.4 9.4	9.4		5 4	4.5	
18-May-15	Fine	Moderate	13:18	Surface	1	26.4 26.1	26.3	7.9 7.8	7.9	29.2 29.1	29.2	90.3 89.6	90.0	6.2 6.2	6.2	6.3	6.1 5.8	6.0	6.5	5 4	4.5	6.5
				Middle	4	26.3 26.0	26.2	7.6 7.8	7.7	30.2 30.2	30.2	91.3 91.3	91.3	6.2 6.3	6.3		6.3 5.9	6.1		11 11	11.0	
				Bottom	7	26.1 26.0	26.1	7.6 7.9	7.8	30.3 30.3	30.3	92.1 92.1	92.1	6.3 6.3	6.3	6.3	7.8 7.1	7.5		4 4	4.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 21 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	14:30	Surface	1	24.0 24.0	24.0	7.9 8.0	8.0	28.9 29.2	29.1	85.1 85.3	85.2	6.1 6.1	6.1	6.0	5.0 4.8	4.9	5.0	4 5	4.5	5.2
				Middle	4	23.7 24.1	23.9	7.9 8.1	8.0	31.5 33.0	32.3	80.3 83.1	81.7	5.7 5.8	5.8		4.9 4.8	4.9		4 4	4.0	
				Bottom	7	24.3 24.4	24.4	8.0 8.1	8.1	32.9 32.9	32.9	77.7 80.1	78.9	5.4 5.6	5.5	5.5	4.7 5.4	5.1		7 7	7.0	
22-May-15	Cloudy	Moderate	15:53	Surface	1	24.4 24.4	24.4	8.1 8.1	8.1	31.0 31.0	31.0	77.3 77.0	77.2	5.4 5.4	5.4	5.3	2.1 1.9	2.0	3.7	4 4	4.0	5.0
				Middle	3.5	24.4 24.4	24.4	8.1 8.1	8.1	31.2 31.2	31.2	74.5 74.4	74.5	5.2 5.2	5.2		4.2 3.8	4.0		5 5	5.0	
				Bottom	6	24.4 24.4	24.4	8.1 8.1	8.1	31.3 31.3	31.3	74.1 74.3	74.2	5.2 5.2	5.2	5.2	5.1 4.9	5.0		6 6	6.0	
26-May-15	Rainy	Calm	18:03	Surface	1	26.8 26.8	26.8	8.0 8.0	8.0	27.6 27.7	27.7	66.4 66.3	66.4	4.6 4.5	4.6	4.5	3.3 3.3	3.3	5.6	4 4	4.0	4.7
				Middle	3.5	26.6 26.5	26.6	8.0 8.0	8.0	28.1 28.2	28.2	63.8 63.8	63.8	4.4 4.4	4.4		4.7 4.6	4.7		6 6	6.0	
				Bottom	6	25.8 25.8	25.8	8.1 8.1	8.1	30.0 30.0	30.0	64.3 64.5	64.4	4.4 4.4	4.4	4.4	8.7 9.0	8.9		4 4	4.0	
28-May-15	Rainy	Calm	10:23	Surface	1	26.5 26.5	26.5	7.7 7.7	7.7	27.8 27.8	27.8	85.7 83.0	84.4	5.9 5.7	5.8	5.7	1.6 1.8	1.7	2.5	4 4	4.0	5.5
				Middle	3.5	26.2 26.1	26.2	7.7 7.7	7.7	30.1 30.1	30.1	82.3 77.9	80.1	5.6 5.3	5.5		1.9 1.9	1.9		7 8	7.5	
				Bottom	6	25.8 25.9	25.9	7.7 7.6	7.7	32.5 32.5	32.5	73.4 71.6	72.5	5.0 4.8	4.9	4.9	3.7 4.2	4.0		5 5	5.0	
30-May-15	Fine	Moderate	11:12	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	25.9 25.9	25.9	106.0 106.0	106.0	7.2 7.2	7.2	7.2	2.5 2.8	2.7	5.3	3 3	3.0	6.7
				Middle	3.5	27.6 27.6	27.6	8.3 8.3	8.3	25.9 26.0	26.0	104.5 103.0	103.8	7.1 7.0	7.1		2.9 3.5	3.2		9 9	9.0	
				Bottom	6	26.5 26.5	26.5	8.1 8.1	8.1	28.7 28.6	28.7	74.0 73.2	73.6	5.1 5.0	5.1	5.1	9.8 10.0	9.9		8 8	8.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 21 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	17:01	Surface	1	24.6 24.6	24.6	7.9 7.9	7.9	32.2 32.2	32.2	66.8 66.5	66.7	4.6 4.6	4.6	4.6	2.0 2.1	2.1	1.9	5 4	4.5	4.5
				Middle	4	24.6 24.6	24.6	7.9 7.9	7.9	32.2 32.2	32.2	67.2 65.5	66.4	4.7 4.5	4.6		1.6 1.7	1.7		4 5	4.5	
				Bottom	7	24.5 24.5	24.5	7.9 7.9	7.9	31.4 32.2	31.8	66.6 65.4	66.0	4.6 4.5	4.6	4.6	1.8 1.9	1.9		5 4	4.5	
4-May-15	Fine	Moderate	19:56	Surface	1	26.0 25.9	26.0	8.1 8.1	8.1	22.3 27.6	25.0	87.9 89.0	88.5	6.3 6.2	6.3	6.2	3.6 3.9	3.8	3.8	3 3	3.0	3.5
				Middle	3.5	25.8 25.8	25.8	8.2 8.2	8.2	27.7 27.7	27.7	87.7 87.7	87.7	6.1 6.1	6.1		3.7 3.9	3.8		4 3	3.5	
				Bottom	6	25.7 25.7	25.7	8.3 8.3	8.3	27.9 27.9	27.9	84.1 83.7	83.9	5.9 5.8	5.9	5.9	3.7 3.6	3.7		4 4	4.0	
6-May-15	Fine	Moderate	07:58	Surface	1	25.4 25.4	25.4	7.9 8.1	8.0	26.1 26.5	26.3	103.2 110.1	106.7	7.3 7.8	7.6	7.3	2.4 2.8	2.6	2.7	5 4	4.5	6.0
				Middle	4	25.5 25.3	25.4	8.1 8.2	8.2	26.3 26.7	26.5	98.4 97.4	97.9	6.9 6.9	6.9		3.0 2.6	2.8		9 9	9.0	
				Bottom	7	25.4 25.3	25.4	7.9 8.0	8.0	26.5 26.5	26.5	93.1 92.5	92.8	6.6 6.5	6.6	6.6	2.5 2.6	2.6		4 5	4.5	
8-May-15	Fine	Rough	09:08	Surface	1	25.5 25.3	25.4	8.1 8.1	8.1	32.0 31.2	31.6	75.0 76.1	75.6	5.1 5.2	5.2	5.4	3.5 3.6	3.6	4.3	7 7	7.0	6.2
				Middle	3.5	25.4 25.4	25.4	8.1 8.1	8.1	31.2 32.9	32.1	76.8 85.1	81.0	5.3 5.8	5.6		4.1 4.5	4.3		6 6	6.0	
				Bottom	6	25.3 25.4	25.4	8.1 8.1	8.1	31.8 33.0	32.4	76.5 84.7	80.6	5.3 5.8	5.6	5.6	4.8 5.0	4.9		5 6	5.5	
11-May-15	Fine	Moderate	11:44	Surface	1	26.1 25.9	26.0	6.9 6.9	6.9	26.6 26.6	26.6	97.7 98.2	98.0	6.8 6.9	6.9	6.2	3.0 3.1	3.1	3.2	4 4	4.0	5.7
				Middle	3.5	25.3 25.3	25.3	6.8 6.8	6.8	27.8 27.8	27.8	78.9 78.6	78.8	5.5 5.5	5.5		3.0 3.1	3.1		6 6	6.0	
				Bottom	6	24.8 24.9	24.9	6.8 6.8	6.8	28.9 29.1	29.0	69.1 70.3	69.7	4.9 4.9	4.9	4.9	3.2 3.4	3.3		7 7	7.0	
13-May-15	Sunny	Moderate	14:59	Surface	1	26.1 26.6	26.4	8.8 8.7	8.8	28.6 30.2	29.4	79.1 82.5	80.8	5.5 5.6	5.6	5.8	3.4 3.1	3.3	3.5	8 8	8.0	6.8
				Middle	3.5	26.8 27.0	26.9	8.7 8.8	8.8	29.3 30.8	30.1	88.4 85.9	87.2	6.0 5.8	5.9		4.3 4.3	4.3		5 5	5.0	
				Bottom	6	27.3 26.5	26.9	8.7 8.8	8.8	29.4 29.6	29.5	87.3 88.0	87.7	5.9 6.0	6.0	6.0	2.8 3.2	3.0		8 7	7.5	
15-May-15	Fine	Moderate	17:07	Surface	1	25.2 24.9	25.1	8.1 8.1	8.1	27.0 27.1	27.1	85.8 79.7	82.8	6.1 5.7	5.9	5.9	4.6 4.1	4.4	4.8	5 5	5.0	4.7
				Middle	3.5	25.0 25.1	25.1	8.1 8.1	8.1	28.5 29.0	28.8	85.5 78.8	82.2	6.0 5.5	5.8		4.8 4.9	4.9		5 5	5.0	
				Bottom	6	24.9 25.1	25.0	8.1 8.1	8.1	29.6 29.1	29.4	85.9 82.1	84.0	6.0 5.7	5.9	5.9	5.3 5.1	5.2		4 4	4.0	
18-May-15	Fine	Moderate	19:53	Surface	1	26.2 26.3	26.3	7.9 8.0	8.0	31.2 31.9	31.6	90.8 91.7	91.3	6.2 6.2	6.2	6.2	5.4 5.3	5.4	5.7	9 9	9.0	6.2
				Middle	4.5	26.1 26.2	26.2	7.8 7.8	7.8	31.4 31.8	31.6	90.1 90.8	90.5	6.1 6.1	6.1		5.4 5.5	5.5		5 5	5.0	
				Bottom	8	26.2 26.1	26.2	7.8 7.9	7.9	31.5 31.6	31.6	90.4 91.1	90.8	6.1 6.2	6.2	6.2	6.5 6.1	6.3		4 5	4.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 21 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	07:46	Surface	1	24.2 23.9	24.1	8.0 8.0	8.0	29.9 30.7	30.3	85.7 87.4	86.6	6.1 6.2	6.2	6.0	4.3 4.6	4.5	4.4	5 5	5.0	5.0
				Middle	4	24.1 23.7	23.9	8.0 8.0	8.0	30.9 31.5	31.2	82.9 80.8	81.9	5.8 5.7	5.8		4.4 4.1	4.3		4 4	4.0	
				Bottom	7	24.0 24.0	24.0	8.1 8.1	8.1	32.4 31.6	32.0	77.5 79.6	78.6	5.4 5.6	5.5	5.5	4.4 4.2	4.3		6 6	6.0	
22-May-15	Cloudy	Moderate	09:21	Surface	1	24.5 24.5	24.5	8.1 8.1	8.1	31.7 31.8	31.8	80.2 80.0	80.1	5.6 5.6	5.6	5.6	1.8 1.7	1.8	4.1	5 4	4.5	6.2
				Middle	4	24.5 24.5	24.5	8.1 8.1	8.1	31.9 31.9	31.9	79.7 79.5	79.6	5.5 5.5	5.5		3.8 3.9	3.9		8 8	8.0	
				Bottom	7	24.5 24.5	24.5	8.1 8.1	8.1	32.0 32.1	32.1	79.6 79.5	79.6	5.5 5.5	5.5	5.5	6.4 6.6	6.5		6 6	6.0	
26-May-15	Rainy	Calm	12:29	Surface	1	26.5 26.4	26.5	8.0 8.1	8.1	27.4 27.5	27.5	69.4 69.0	69.2	4.8 4.8	4.8	4.8	4.3 4.1	4.2	5.0	6 6	6.0	6.0
				Middle	3	26.3 26.4	26.4	8.1 8.0	8.1	28.1 27.8	28.0	67.8 66.9	67.4	4.7 4.6	4.7		4.5 5.1	4.8		7 7	7.0	
				Bottom	5	25.8 25.8	25.8	8.1 8.1	8.1	29.3 29.4	29.4	54.4 54.7	54.6	3.8 3.8	3.8	3.8	5.7 6.0	5.9		5 5	5.0	
28-May-15	Rainy	Calm	13:59	Surface	1	26.8 26.8	26.8	7.7 7.7	7.7	26.6 26.6	26.6	81.3 85.9	83.6	5.6 5.9	5.8	5.5	1.6 1.8	1.7	6.2	6 7	6.5	6.0
				Middle	3.5	26.3 26.3	26.3	7.7 7.7	7.7	28.1 28.4	28.3	76.9 73.6	75.3	5.3 5.1	5.2		1.7 1.6	1.7		5 5	5.0	
				Bottom	6	26.1 26.1	26.1	7.7 7.7	7.7	29.2 29.3	29.3	58.4 65.1	61.8	4.0 4.5	4.3	4.3	15.0 15.6	15.3		7 6	6.5	
30-May-15	Fine	Moderate	17:38	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	25.9 25.9	25.9	106.0 106.0	106.0	7.2 7.2	7.2	7.0	2.8 2.8	2.8	5.7	4 3	3.5	6.3
				Middle	3.5	27.5 27.5	27.5	8.2 8.2	8.2	26.1 26.1	26.1	99.8 98.7	99.3	6.8 6.7	6.8		3.8 4.1	4.0		9 9	9.0	
				Bottom	6	26.5 26.5	26.5	8.1 8.1	8.1	28.6 28.5	28.6	72.6 72.3	72.5	5.0 5.0	5.0	5.0	10.1 10.2	10.2		6 7	6.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 34 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	12:46	Surface	1	24.7 24.7	24.7	7.9 7.9	7.9	32.2 32.2	32.2	66.6 66.6	66.6	4.6 4.6	4.6	4.6	1.3 1.4	1.4	2.7	5 5	5.0	5.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.6	24.7 24.7	24.7	7.9 7.9	7.9	32.2 32.2	32.2	66.3 65.9	66.1	4.6 4.6	4.6	4.6	3.9 4.0	4.0		6 6	6.0	
4-May-15	Fine	Moderate	13:40	Surface	1	26.3 26.3	26.3	8.0 8.0	8.0	28.2 28.2	28.2	75.1 75.1	75.1	5.2 5.2	5.2	5.2	3.8 3.6	3.7	3.8	6 5	5.5	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.7	25.9 25.9	25.9	8.1 8.1	8.1	28.6 28.6	28.6	74.6 74.6	74.6	5.2 5.2	5.2	5.2	3.9 3.8	3.9		4 5	4.5	
6-May-15	Fine	Moderate	14:57	Surface	1	24.6 24.5	24.6	8.4 8.4	8.4	28.3 28.5	28.4	98.1 97.9	98.0	7.0 6.9	7.0	7.0	4.5 4.6	4.6	4.8	4 4	4.0	3.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	24.5 24.5	24.5	8.3 8.4	8.4	28.6 28.5	28.6	98.1 97.9	98.0	7.0 6.9	7.0	7.0	4.8 4.9	4.9		3 3	3.0	
8-May-15	Fine	Rough	16:15	Surface	1	25.5 25.4	25.5	8.0 8.1	8.1	31.8 32.2	32.0	79.3 78.9	79.1	5.4 5.4	5.4	5.4	4.2 4.2	4.2	4.6	5 6	5.5	4.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	25.5 25.4	25.5	8.0 8.0	8.0	33.1 31.6	32.4	76.4 78.5	77.5	5.2 5.4	5.3	5.3	4.8 4.9	4.9		4 4	4.0	
11-May-15	Fine	Moderate	19:16	Surface	1	25.8 25.8	25.8	6.7 6.7	6.7	27.6 28.2	27.9	82.7 82.8	82.8	5.8 5.8	5.8	5.8	3.0 3.0	3.0	3.5	4 3	3.5	3.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.6	25.9 25.8	25.9	6.7 6.7	6.7	28.1 28.2	28.2	83.6 82.7	83.2	5.8 5.7	5.8	5.8	3.9 4.0	4.0		3 3	3.0	
13-May-15	Sunny	Moderate	09:46	Surface	1	26.3 27.3	26.8	8.6 8.6	8.6	29.9 28.8	29.4	81.8 80.6	81.2	5.6 5.4	5.5	5.5	4.0 3.9	4.0	3.8	5 4	4.5	4.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.9	26.4 26.2	26.3	8.6 8.6	8.6	30.1 30.1	30.1	87.9 84.4	86.2	6.0 5.8	5.9	5.9	3.5 3.6	3.6		4 4	4.0	
15-May-15	Fine	Moderate	11:29	Surface	1	25.4 25.3	25.4	8.1 8.1	8.1	29.9 33.0	31.5	84.0 84.6	84.3	5.8 5.8	5.8	5.8	5.3 5.7	5.5	7.1	6 5	5.5	5.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.7	25.3 25.3	25.3	8.1 8.1	8.1	30.5 29.5	30.0	85.2 84.2	84.7	5.9 5.9	5.9	5.9	8.5 8.6	8.6		5 6	5.5	
18-May-15	Fine	Moderate	13:35	Surface	1	26.5 26.1	26.3	7.9 7.9	7.9	28.9 28.6	28.8	92.0 90.5	91.3	6.3 6.2	6.3	6.3	6.0 5.9	6.0	6.5	7 7	7.0	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	26.1 26.1	26.1	7.9 7.9	7.9	29.4 29.1	29.3	92.7 88.9	90.8	6.4 6.1	6.3	6.3	6.8 6.9	6.9		3 3	3.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 34 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	14:54	Surface	1	24.3 24.0	24.2	8.0 8.0	8.0	31.0 29.6	30.3	83.4 82.4	82.9	5.9 5.9	5.9	5.9	5.1 4.8	5.0	5.1	4 4	4.0	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	24.0 24.1	24.1	8.0 8.0	8.0	31.6 32.5	32.1	82.6 83.5	83.1	5.8 5.8	5.8	5.8	5.1 5.0	5.1		6 6	6.0	
22-May-15	Cloudy	Moderate	16:15	Surface	1	24.5 24.5	24.5	8.0 8.0	8.0	31.2 31.2	31.2	75.2 75.2	75.2	5.3 5.3	5.3	5.3	2.1 1.8	2.0	2.1	7 7	7.0	5.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	24.5 24.5	24.5	8.0 8.0	8.0	31.2 31.2	31.2	75.1 74.8	75.0	5.2 5.2	5.2	5.2	2.2 2.2	2.2		5 4	4.5	
26-May-15	Rainy	Calm	18:12	Surface	1	26.0 25.9	26.0	8.1 8.0	8.1	27.0 27.0	27.0	67.2 66.6	66.9	4.7 4.7	4.7	4.7	1.5 1.7	1.6	2.0	4 4	4.0	5.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.3	25.8 25.8	25.8	8.0 8.0	8.0	28.4 28.4	28.4	63.3 63.6	63.5	4.4 4.4	4.4	4.4	2.4 2.1	2.3		7 8	7.5	
28-May-15	Rainy	Calm	10:35	Surface	1	26.3 26.2	26.3	7.8 7.7	7.8	29.7 29.7	29.7	76.6 74.5	75.6	5.2 5.1	5.2	5.2	3.6 3.7	3.7	4.7	7 6	6.5	5.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.1	26.0 25.9	26.0	7.7 7.7	7.7	31.3 31.4	31.4	73.6 72.9	73.3	5.0 5.0	5.0	5.0	5.4 5.8	5.6		5 5	5.0	
30-May-15	Fine	Moderate	11:36	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	26.1 26.1	26.1	101.5 101.7	101.6	6.9 6.9	6.9	6.9	3.0 2.9	3.0	4.4	6 6	6.0	6.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	27.6 27.6	27.6	8.2 8.2	8.2	26.3 26.4	26.4	87.1 87.0	87.1	5.9 5.9	5.9	5.9	5.5 6.1	5.8		6 6	6.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 34 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	16:48	Surface	1	25.0 25.0	25.0	7.8 7.8	7.8	32.0 32.0	32.0	87.8 87.6	87.7	6.1 6.0	6.1	6.1	1.1 1.0	1.1	1.3	4 5	4.5	6.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.5	24.9 24.9	24.9	7.8 7.8	7.8	32.0 32.1	32.1	85.2 84.4	84.8	5.9 5.8	5.9	5.9	1.4 1.3	1.4		8 7	7.5	
4-May-15	Fine	Moderate	20:14	Surface	1	26.9 26.7	26.8	7.9 7.9	7.9	26.7 27.4	27.1	75.2 75.1	75.2	5.2 5.2	5.2	5.2	3.6 3.6	3.6	3.8	4 5	4.5	4.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.7	26.2 26.2	26.2	8.1 8.1	8.1	27.9 27.9	27.9	73.7 73.7	73.7	5.1 5.1	5.1	5.1	3.8 4.2	4.0		5 5	5.0	
6-May-15	Fine	Moderate	08:32	Surface	1	25.0 25.0	25.0	8.2 8.0	8.1	27.3 25.0	26.2	97.5 95.4	96.5	6.9 6.8	6.9	6.9	1.3 1.4	1.4	2.1	6 6	6.0	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.8	25.0 25.2	25.1	8.2 8.0	8.1	27.4 26.7	27.1	98.6 94.7	96.7	7.0 6.7	6.9	6.9	2.8 2.7	2.8		4 4	4.0	
8-May-15	Fine	Rough	09:31	Surface	1	25.4 25.4	25.4	8.0 8.0	8.0	32.0 32.8	32.4	84.8 83.7	84.3	5.8 5.7	5.8	5.8	3.4 3.7	3.6	4.0	5 4	4.5	3.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	25.3 25.4	25.4	7.9 8.0	8.0	32.6 31.8	32.2	83.8 84.0	83.9	5.7 5.8	5.8	5.8	4.0 4.8	4.4		3 3	3.0	
11-May-15	Fine	Moderate	12:11	Surface	1	26.2 25.8	26.0	8.0 8.0	8.0	32.8 31.3	32.1	78.7 77.2	78.0	5.3 5.3	5.3	5.3	3.0 3.0	3.0	3.0	7 6	6.5	5.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.5	25.9 25.7	25.8	8.0 8.0	8.0	31.2 31.5	31.4	75.7 74.9	75.3	5.2 5.1	5.2	5.2	3.0 3.0	3.0		4 4	4.0	
13-May-15	Sunny	Moderate	15:21	Surface	1	26.2 27.1	26.7	8.7 8.7	8.7	30.9 29.3	30.1	88.8 88.1	88.5	6.0 6.0	6.0	6.0	3.8 3.3	3.6	3.8	6 6	6.0	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.9	26.8 26.5	26.7	8.8 8.7	8.8	29.8 30.3	30.1	87.3 87.9	87.6	5.9 6.0	6.0	6.0	3.6 4.4	4.0		4 4	4.0	
15-May-15	Fine	Moderate	17:29	Surface	1	25.2 25.1	25.2	8.1 8.1	8.1	27.2 27.2	27.2	82.8 81.7	82.3	5.8 5.8	5.8	5.8	3.9 3.6	3.8	4.3	5 5	5.0	4.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.9	25.2 25.3	25.3	8.1 8.1	8.1	28.0 27.8	27.9	81.1 81.1	81.1	5.7 5.7	5.7	5.7	4.8 4.6	4.7		4 4	4.0	
18-May-15	Fine	Moderate	20:15	Surface	1	26.2 26.2	26.2	8.1 8.1	8.1	33.0 32.5	32.8	84.6 84.8	84.7	5.7 5.7	5.7	5.7	4.3 4.0	4.2	4.6	4 3	3.5	4.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.4	26.1 26.3	26.2	8.1 8.1	8.1	32.8 32.4	32.6	77.8 79.0	78.4	5.2 5.3	5.3	5.3	5.0 5.0	5.0		5 5	5.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 34 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	08:11	Surface	1	24.0 24.1	24.1	7.9 8.0	8.0	31.2 30.3	30.8	83.3 83.9	83.6	5.9 5.9	5.9	5.9	4.5 4.3	4.4	4.3	4 4	4.0	4.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.7	23.8 24.1	24.0	8.0 8.0	8.0	30.6 30.7	30.7	81.4 82.4	81.9	5.8 5.8	5.8	5.8	4.1 4.3	4.2		5 6	5.5	
22-May-15	Cloudy	Moderate	09:41	Surface	1	24.6 24.6	24.6	8.1 8.1	8.1	31.9 31.9	31.9	75.8 75.6	75.7	5.3 5.3	5.3	5.3	1.1 0.9	1.0	2.2	9 9	9.0	6.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	24.6 24.6	24.6	8.1 8.1	8.1	32.0 32.0	32.0	75.7 75.7	75.7	5.3 5.3	5.3	5.3	3.2 3.5	3.4		4 4	4.0	
26-May-15	Rainy	Calm	12:46	Surface	1	26.1 26.1	26.1	8.0 8.0	8.0	26.7 26.8	26.8	66.5 66.0	66.3	4.6 4.6	4.6	4.6	1.1 0.9	1.0	1.9	4 4	4.0	5.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.6	26.1 26.1	26.1	8.0 8.0	8.0	28.1 28.2	28.2	63.2 63.0	63.1	4.4 4.4	4.4	4.4	2.7 2.7	2.7		7 8	7.5	
28-May-15	Rainy	Calm	13:41	Surface	1	27.3 27.3	27.3	7.7 7.7	7.7	27.3 27.3	27.3	81.6 81.2	81.4	5.6 5.5	5.6	5.6	2.2 2.4	2.3	2.4	3 3	3.0	3.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.3	27.3 27.3	27.3	7.7 7.7	7.7	27.2 27.2	27.2	76.3 74.5	75.4	5.2 5.1	5.2	5.2	2.5 2.2	2.4		4 4	4.0	
30-May-15	Fine	Moderate	18:03	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	26.1 26.1	26.1	101.5 101.7	101.6	6.9 6.9	6.9	6.9	2.9 2.9	2.9	3.4	6 6	6.0	5.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	27.6 27.6	27.6	8.2 8.2	8.2	26.3 26.3	26.3	87.8 89.2	88.5	6.0 6.1	6.1	6.1	3.8 3.8	3.8		4 4	4.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 9 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	11:05	Surface	-	-	-	-	-	-	-	-	-	-	-	6.7	-	-	4.5	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	1.5	27.2	27.1	8.1	8.1	30.1	30.1	95.7	95.7	6.7	6.7		4.5	4.5		5	4.5	
						27.0		8.1		30.1		95.7		6.7			4.4			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-May-15	Fine	Moderate	12:02	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	3.9	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	1.5	26.9	26.9	7.4	7.4	27.0	27.1	89.8	89.8	6.2	6.2		3.7	3.9		6	6.0	
						26.9		7.4		27.1		89.7		6.2			4.0			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-May-15	Fine	Moderate	13:00	Surface	-	-	-	-	-	-	-	-	-	-	-	6.9	-	-	3.2	-	-	3.5
						-		-		-		-		-			-			-		
				Middle	1.5	25.3	25.3	7.9	8.0	26.8	26.9	97.6	97.7	6.9	6.9		3.2	3.2		4	3.5	
						25.3		8.1		26.9		97.7		6.9			3.2			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
8-May-15	Fine	Rough	14:32	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	0.8	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	1.5	25.1	25.1	8.1	8.1	33.2	33.2	81.7	81.1	5.6	5.6		0.7	0.8		6	6.0	
						25.0		8.1		33.1		80.5		5.5			0.8			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-May-15	Fine	Moderate	17:17	Surface	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	3.9	-	-	3.0
						-		-		-		-		-			-			-		
				Middle	1.5	30.8	30.8	7.8	7.8	31.3	31.5	101.2	101.1	6.4	6.4		3.8	3.9		3	3.0	
						30.7		7.8		31.7		100.9		6.3			4.0			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
13-May-15	Sunny	Moderate	07:58	Surface	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	3.1	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	1.5	29.0	29.0	8.1	8.0	26.8	26.9	85.8	90.6	5.7	6.0		3.2	3.1		6	6.0	
						29.0		7.9		27.0		95.4		6.3			3.0			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
15-May-15	Fine	Moderate	09:46	Surface	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	4.4	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1.5	25.0	25.0	8.1	8.1	27.7	27.7	81.7	81.8	5.8	5.8		4.3	4.4		4	4.0	
						25.0		8.1		27.7		81.9		5.8			4.5			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-May-15	Fine	Moderate	12:21	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	3.2	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1.5	27.5	27.4	7.5	7.6	31.4	31.5	93.1	93.0	6.2	6.2		3.1	3.2		4	4.0	
						27.3		7.6		31.5		92.8		6.2			3.2			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 9 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	13:18	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	5.0	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	1.5	24.0	24.2	8.1	8.1	32.2	31.8	87.9	87.8	6.2	6.2		5.3	5.0		6	6.0	
						24.4		8.0		31.3		87.6		6.1			4.7			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
22-May-15	Cloudy	Moderate	14:45	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	0.1	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	1.5	24.3	24.3	8.1	8.1	31.4	31.4	77.5	77.6	5.4	5.4		0.1	0.1		4	4.5	
						24.3		8.1		31.4		77.6		5.4			0.1			5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
26-May-15	Rainy	Calm	17:31	Surface	-	-	-	-	-	-	-	-	-	-	-	4.9	-	-	1.2	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	1.5	26.2	26.2	8.0	8.0	28.4	28.5	71.0	70.9	4.9	4.9		1.2	1.2		4	4.5	
						26.2		8.0		28.5		70.7		4.9			1.2			5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
28-May-15	Rainy	Calm	09:09	Surface	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	1.2	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1.5	25.9	25.6	7.7	7.7	12.7	13.1	85.8	82.9	6.5	6.3		1.2	1.2		4	4.0	
						25.3		7.6		13.4		79.9		6.1			1.2			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
30-May-15	Fine	Moderate	09:58	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	1.3	-	-	5.5
						-		-		-		-		-			-			-		
				Middle	1.5	29.1	29.1	7.9	8.0	23.1	23.2	96.3	96.4	6.5	6.5		1.3	1.3		5	5.5	
						29.0		8.0		23.2		96.5		6.5			1.3			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 9 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	18:23	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	1.6	-	-	6.5
						-		-		-		-		-			-			-		
				Middle	1.5	26.7	26.7	7.4	7.4	29.1	29.5	94.4	94.4	6.5	6.5		1.6	1.6		6	6.5	
						26.7		7.4		29.8		94.3		6.5			1.6			7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-May-15	Fine	Moderate	18:38	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	3.8	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1.5	28.0	28.0	7.9	7.9	27.0	27.0	92.2	92.1	6.2	6.2		3.6	3.8		4	4.0	
						28.0		7.9		27.0		92.0		6.2			4.0			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-May-15	Fine	Moderate	06:23	Surface	-	-	-	-	-	-	-	-	-	-	-	6.6	-	-	2.0	-	-	6.5
						-		-		-		-		-			-			-		
				Middle	1.5	25.5	25.5	7.8	7.8	26.0	26.1	94.0	92.9	6.6	6.6		2.1	2.0		6	6.5	
						25.5		7.8		26.1		91.7		6.5			1.9			7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
8-May-15	Fine	Rough	07:47	Surface	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	1.2	-	-	3.0
						-		-		-		-		-			-			-		
				Middle	1.5	25.0	25.0	8.0	8.0	33.3	33.4	86.1	84.9	5.9	5.8		1.1	1.2		3	3.0	
						25.0		8.0		33.5		83.7		5.7			1.2			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-May-15	Fine	Moderate	10:11	Surface	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	3.3	-	-	3.0
						-		-		-		-		-			-			-		
				Middle	1.5	31.2	31.1	7.8	7.8	32.0	32.0	103.2	103.0	6.4	6.4		3.3	3.3		3	3.0	
						31.0		7.8		32.0		102.7		6.4			3.2			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
13-May-15	Sunny	Moderate	13:38	Surface	-	-	-	-	-	-	-	-	-	-	-	5.9	-	-	4.2	-	-	6.5
						-		-		-		-		-			-			-		
				Middle	1.5	29.0	29.0	8.4	8.5	26.7	26.9	86.8	88.6	5.8	5.9		4.2	4.2		7	6.5	
						29.0		8.5		27.1		90.3		6.0			4.2			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
15-May-15	Fine	Moderate	15:50	Surface	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	5.3	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1.5	25.8	25.8	8.1	8.1	25.7	25.7	88.7	88.8	6.3	6.3		5.3	5.3		4	4.0	
						25.8		8.1		25.7		88.9		6.3			5.3			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-May-15	Fine	Moderate	18:42	Surface	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	4.6	-	-	3.5
						-		-		-		-		-			-			-		
				Middle	1.5	26.3	26.3	7.7	7.8	31.2	31.2	85.4	85.4	5.8	5.8		4.6	4.6		4	3.5	
						26.2		7.8		31.2		85.3		5.8			4.5			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at 9 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	06:30	Surface	-	-	-	-	-	-	-	-	-	-	-	6.1	-	-	4.4	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	1.5	24.0	24.0	8.1	8.1	32.3	31.8	85.9	86.4	6.0	6.1		4.4	4.4		5	4.5	
						24.0		8.1		31.3		86.9		6.1			4.4			4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
22-May-15	Cloudy	Moderate	08:19	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	1.5	-	-	5.5
						-		-		-		-		-			-			-		
				Middle	1.5	24.4	24.4	8.1	8.1	32.1	32.1	79.1	79.2	5.5	5.5		1.5	1.5		5	5.5	
						24.4		8.1		32.1		79.3		5.5			1.5			6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
26-May-15	Rainy	Calm	11:21	Surface	-	-	-	-	-	-	-	-	-	-	-	5.1	-	-	1.8	-	-	5.0
						-		-		-		-		-			-			-		
				Middle	1.5	26.1	26.1	8.0	8.0	26.0	26.1	72.1	72.4	5.0	5.1		1.8	1.8		5	5.0	
						26.1		8.0		26.1		72.7		5.1			1.8			5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
28-May-15	Rainy	Calm	15:09	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	3.8	-	-	5.0
						-		-		-		-		-			-			-		
				Middle	1.5	27.1	27.2	7.6	7.6	27.3	27.3	81.1	80.9	5.5	5.5		3.6	3.8		5	5.0	
						27.2		7.6		27.3		80.7		5.5			3.9			5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
30-May-15	Fine	Moderate	16:22	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	1.7	-	-	3.0
						-		-		-		-		-			-			-		
				Middle	1.5	29.0	29.0	8.0	8.0	23.2	23.3	96.2	96.2	6.5	6.5		1.6	1.7		3	3.0	
						28.9		8.0		23.3		96.1		6.5			1.8			3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	11:38	Surface	1	24.7 24.7	24.7	7.9 7.9	7.9	31.9 31.9	31.9	72.4 71.5	72.0	5.0 5.0	5.0	5.0	2.2 2.3	2.3	1.7	6 5	5.5	5.5
				Middle	3	24.7 24.7	24.7	7.9 7.9	7.9	30.4 31.9	31.2	70.6 70.2	70.4	4.9 4.9	4.9		1.7 1.5	1.6		5 6	5.5	
				Bottom	5	24.7 24.7	24.7	7.9 7.9	7.9	31.9 31.9	31.9	69.8 69.5	69.7	4.8 4.8	4.8	4.8	1.1 1.1	1.1		6 5	5.5	
4-May-15	Fine	Moderate	12:12	Surface	1	26.2 26.2	26.2	7.8 7.8	7.8	28.1 28.1	28.1	86.9 87.1	87.0	6.0 6.0	6.0	6.0	3.5 4.0	3.8	3.7	5 6	5.5	5.0
				Middle	3.5	25.8 25.8	25.8	7.9 7.9	7.9	28.4 28.4	28.4	86.8 86.8	86.8	6.0 6.0	6.0		4.0 3.4	3.7		4 4	4.0	
				Bottom	6	25.7 25.7	25.7	8.2 8.2	8.2	28.6 28.6	28.6	77.7 77.7	77.7	5.4 5.4	5.4	5.4	3.8 3.6	3.7		5 6	5.5	
6-May-15	Fine	Moderate	13:15	Surface	1	25.2 25.1	25.2	8.1 8.2	8.2	27.3 27.3	27.3	98.8 97.0	97.9	7.0 6.9	7.0	6.8	2.8 2.7	2.8	4.4	4 3	3.5	4.8
				Middle	3	25.2 25.4	25.3	7.9 7.9	7.9	26.9 26.6	26.8	92.0 93.0	92.5	6.5 6.6	6.6		4.5 4.9	4.7		4 4	4.0	
				Bottom	5	25.3 25.4	25.4	8.1 8.0	8.1	26.9 26.7	26.8	92.6 96.0	94.3	6.5 6.8	6.7	6.7	5.5 5.8	5.7		7 7	7.0	
8-May-15	Fine	Rough	14:48	Surface	1	25.4 25.3	25.4	8.1 8.1	8.1	33.0 33.3	33.2	75.2 74.4	74.8	5.1 5.1	5.1	5.1	3.2 3.2	3.2	4.2	5 4	4.5	5.5
				Middle	3	25.4 24.7	25.1	8.1 8.1	8.1	32.9 33.0	33.0	73.6 73.9	73.8	5.0 5.1	5.1		4.5 4.5	4.5		6 6	6.0	
				Bottom	5	25.0 24.9	25.0	8.1 8.1	8.1	32.3 32.2	32.3	72.6 73.3	73.0	5.0 5.1	5.1	5.1	5.0 5.0	5.0		6 6	6.0	
11-May-15	Fine	Moderate	17:30	Surface	1	25.3 25.4	25.4	8.0 8.0	8.0	31.3 31.4	31.4	73.7 73.5	73.6	5.1 5.1	5.1	5.1	3.1 3.1	3.1	3.0	4 4	4.0	4.2
				Middle	3	25.1 25.2	25.2	8.0 8.0	8.0	31.1 31.1	31.1	72.1 71.9	72.0	5.0 5.0	5.0		3.2 3.1	3.2		4 4	4.0	
				Bottom	5	25.1 25.1	25.1	8.0 8.0	8.0	31.0 31.0	31.0	71.9 72.0	72.0	5.0 5.0	5.0	5.0	2.8 2.8	2.8		5 4	4.5	
13-May-15	Sunny	Moderate	08:15	Surface	1	27.2 26.2	26.7	8.6 8.7	8.7	29.1 30.5	29.8	93.0 88.0	90.5	6.3 6.0	6.2	6.1	3.4 3.4	3.4	3.7	5 6	5.5	5.2
				Middle	3	26.7 26.4	26.6	8.6 8.6	8.6	28.7 29.2	29.0	89.2 83.3	86.3	6.1 5.7	5.9		3.7 4.4	4.1		4 5	4.5	
				Bottom	5	27.3 27.0	27.2	8.6 8.6	8.6	30.1 29.1	29.6	90.6 85.4	88.0	6.1 5.8	6.0	6.0	3.4 3.5	3.5		6 5	5.5	
15-May-15	Fine	Moderate	09:58	Surface	1	25.2 25.3	25.3	8.1 8.1	8.1	26.9 26.5	26.7	90.7 87.8	89.3	6.4 6.2	6.3	6.4	3.4 3.2	3.3	4.5	5 6	5.5	5.8
				Middle	3.5	25.4 25.1	25.3	8.1 8.2	8.2	27.4 27.7	27.6	92.1 87.6	89.9	6.5 6.2	6.4		3.2 3.3	3.3		6 6	6.0	
				Bottom	6	25.2 25.1	25.2	8.1 8.1	8.1	30.0 31.0	30.5	88.7 84.6	86.7	6.2 5.9	6.1	6.1	7.1 6.8	7.0		6 6	6.0	
18-May-15	Fine	Moderate	12:30	Surface	1	26.3 26.0	26.2	7.7 7.7	7.7	31.6 31.6	31.6	87.2 86.3	86.8	5.9 5.9	5.9	5.9	2.7 3.0	2.9	4.3	4 3	3.5	5.7
				Middle	3.5	26.2 26.1	26.2	7.4 7.5	7.5	31.6 31.6	31.6	86.6 85.3	86.0	5.9 5.8	5.9		4.4 4.5	4.5		5 5	5.0	
				Bottom	6	26.0 26.0	26.0	7.4 7.6	7.5	32.0 32.0	32.0	81.1 80.0	80.6	5.5 5.4	5.5	5.5	5.3 5.5	5.4		9 8	8.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	13:36	Surface	1	24.1 24.0	24.1	8.0 7.9	8.0	30.2 30.9	30.6	85.2 87.0	86.1	6.0 6.1	6.1	5.9	4.4 4.5	4.5	4.4	5 5	5.0	4.2
				Middle	3.5	23.9 23.7	23.8	8.0 8.0	8.0	32.0 31.4	31.7	81.7 80.0	80.9	5.7 5.7	5.7		4.1 4.6	4.4		5 5	5.0	
				Bottom	6	23.9 23.8	23.9	8.0 8.1	8.1	32.3 30.5	31.4	78.4 77.4	77.9	5.5 5.5	5.5	5.5	4.1 4.5	4.3		<2.5 <2.5	<2.5	
22-May-15	Cloudy	Moderate	15:02	Surface	1	24.3 24.3	24.3	8.1 8.1	8.1	30.9 30.9	30.9	69.7 70.0	69.9	4.9 4.9	4.9	4.9	1.2 1.1	1.2	1.9	3 4	3.5	5.2
				Middle	3	24.3 24.3	24.3	8.1 8.1	8.1	31.1 31.2	31.2	67.9 68.2	68.1	4.8 4.8	4.8		2.1 1.8	2.0		3 4	3.5	
				Bottom	5	24.3 24.3	24.3	8.1 8.1	8.1	31.3 31.4	31.4	67.9 68.2	68.1	4.8 4.8	4.8	4.8	2.4 2.5	2.5		9 8	8.5	
26-May-15	Rainy	Calm	17:39	Surface	1	26.2 26.1	26.2	8.0 8.0	8.0	26.1 26.2	26.2	87.5 87.6	87.6	6.1 6.1	6.1	6.0	4.9 4.8	4.9	4.4	3 4	3.5	4.5
				Middle	3	26.2 26.2	26.2	8.0 8.0	8.0	26.5 26.5	26.5	83.6 83.7	83.7	5.8 5.8	5.8		4.2 4.1	4.2		4 4	4.0	
				Bottom	5	26.3 26.3	26.3	8.0 8.0	8.0	26.8 26.8	26.8	77.8 77.5	77.7	5.4 5.4	5.4	5.4	4.3 4.1	4.2		6 6	6.0	
28-May-15	Rainy	Calm	09:19	Surface	1	24.9 26.7	25.8	7.7 7.7	7.7	26.9 26.9	26.9	70.4 74.1	72.3	5.0 5.1	5.1	5.0	1.0 1.1	1.1	1.7	4 3	3.5	5.0
				Middle	3	27.4 26.5	27.0	7.7 7.7	7.7	27.0 27.0	27.0	72.2 71.0	71.6	4.9 4.9	4.9		2.1 2.0	2.1		7 6	6.5	
				Bottom	5	27.5 26.0	26.8	7.7 7.7	7.7	29.5 30.5	30.0	56.5 63.8	60.2	3.8 4.4	4.1	4.1	1.8 1.8	1.8		5 5	5.0	
30-May-15	Fine	Moderate	10:11	Surface	1	27.6 27.6	27.6	8.3 8.3	8.3	24.8 24.8	24.8	111.7 111.7	111.7	7.7 7.7	7.7	7.7	0.6 0.7	0.7	2.0	5 5	5.0	5.7
				Middle	3	27.6 27.6	27.6	8.3 8.3	8.3	24.9 24.9	24.9	110.5 110.6	110.6	7.6 7.6	7.6		1.2 1.1	1.2		6 6	6.0	
				Bottom	5	26.9 26.8	26.9	8.2 8.2	8.2	26.1 26.5	26.3	80.9 76.4	78.7	5.6 5.3	5.5	5.5	4.3 3.7	4.0		6 6	6.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	17:55	Surface	1	24.7 24.7	24.7	7.9 7.9	7.9	31.9 31.9	31.9	69.2 67.8	68.5	4.8 4.7	4.8	4.8	1.2 1.3	1.3	1.3	5 5	5.0	4.7
				Middle	3	24.7 24.7	24.7	7.9 7.9	7.9	31.9 31.9	31.9	69.1 67.3	68.2	4.8 4.7	4.8		1.2 1.3	1.3		5 5	5.0	
				Bottom	5	24.7 24.7	24.7	7.9 7.9	7.9	31.9 31.9	31.9	68.1 66.7	67.4	4.7 4.6	4.7	4.7	1.2 1.2	1.2		4 4	4.0	
4-May-15	Fine	Moderate	18:55	Surface	1	26.0 25.9	26.0	8.1 8.1	8.1	27.5 27.5	27.5	84.3 85.1	84.7	5.9 5.9	5.9	5.8	3.6 3.8	3.7	3.7	6 6	6.0	5.3
				Middle	3.5	25.6 25.6	25.6	8.2 8.2	8.2	27.9 27.9	27.9	81.1 81.2	81.2	5.7 5.7	5.7		4.0 3.6	3.8		4 5	4.5	
				Bottom	6	25.3 25.3	25.3	8.4 8.4	8.4	28.3 28.3	28.3	74.1 73.6	73.9	5.2 5.2	5.2	5.2	3.9 3.4	3.7		5 6	5.5	
6-May-15	Fine	Moderate	06:34	Surface	1	25.4 25.1	25.3	7.9 7.9	7.9	26.2 26.4	26.3	93.5 94.4	94.0	6.6 6.7	6.7	6.9	2.6 2.6	2.6	2.9	3 3	3.0	5.3
				Middle	3.5	25.1 24.8	25.0	8.1 8.4	8.3	26.7 27.7	27.2	98.8 97.0	97.9	7.0 6.9	7.0		2.8 3.2	3.0		3 3	3.0	
				Bottom	6	24.9 24.5	24.7	8.2 8.5	8.4	27.2 28.0	27.6	99.1 96.9	98.0	7.0 6.9	7.0	7.0	3.1 3.0	3.1		10 10	10.0	
8-May-15	Fine	Rough	08:03	Surface	1	25.3 25.3	25.3	8.1 8.0	8.1	33.5 33.2	33.4	81.7 80.7	81.2	5.6 5.5	5.6	5.6	3.7 4.0	3.9	4.4	3 3	3.0	4.3
				Middle	3	25.3 24.7	25.0	8.0 8.0	8.0	33.0 32.8	32.9	81.9 81.0	81.5	5.6 5.6	5.6		4.0 4.4	4.2		6 6	6.0	
				Bottom	5	25.4 24.9	25.2	8.0 8.0	8.0	33.3 32.1	32.7	81.1 81.2	81.2	5.5 5.6	5.6	5.6	4.8 5.1	5.0		4 4	4.0	
11-May-15	Fine	Moderate	10:25	Surface	1	25.4 25.5	25.5	8.0 7.9	8.0	31.5 31.4	31.5	77.7 77.8	77.8	5.3 5.3	5.3	5.3	2.9 3.0	3.0	2.9	4 4	4.0	4.2
				Middle	3	25.6 25.4	25.5	8.0 8.0	8.0	31.9 31.7	31.8	77.5 76.5	77.0	5.3 5.2	5.3		2.7 2.8	2.8		5 5	5.0	
				Bottom	5	25.5 25.3	25.4	8.0 8.0	8.0	31.7 31.9	31.8	75.4 75.3	75.4	5.2 5.2	5.2	5.2	2.6 2.9	2.8		3 4	3.5	
13-May-15	Sunny	Moderate	13:52	Surface	1	26.7 27.3	27.0	8.9 8.8	8.9	28.7 29.5	29.1	81.7 90.3	86.0	5.6 6.1	5.9	5.9	4.4 4.4	4.4	3.8	3 3	3.0	4.3
				Middle	3	26.4 26.9	26.7	8.7 8.9	8.8	30.9 30.1	30.5	87.9 85.0	86.5	6.0 5.7	5.9		3.5 3.5	3.5		3 3	3.0	
				Bottom	5	26.3 27.1	26.7	8.8 8.8	8.8	30.4 30.6	30.5	86.3 82.8	84.6	5.9 5.6	5.8	5.8	3.7 3.5	3.6		7 7	7.0	
15-May-15	Fine	Moderate	16:03	Surface	1	26.3 25.4	25.9	8.1 8.1	8.1	27.0 27.9	27.5	90.5 83.0	86.8	6.3 5.8	6.1	6.2	2.5 2.8	2.7	3.9	6 6	6.0	5.2
				Middle	3.5	25.4 25.3	25.4	8.1 8.1	8.1	27.4 27.3	27.4	88.1 90.9	89.5	6.2 6.4	6.3		3.4 3.2	3.3		5 6	5.5	
				Bottom	6	25.3 25.4	25.4	8.2 8.2	8.2	29.4 30.5	30.0	88.6 91.0	89.8	6.2 6.3	6.3	6.3	5.7 5.6	5.7		4 4	4.0	
18-May-15	Fine	Moderate	18:56	Surface	1	26.2 26.2	26.2	7.9 7.9	7.9	30.8 30.9	30.9	90.1 89.8	90.0	6.1 6.1	6.1	6.1	1.3 1.2	1.3	2.2	3 3	3.0	3.7
				Middle	3.5	26.1 26.2	26.2	7.6 7.7	7.7	31.1 31.2	31.2	88.7 88.6	88.7	6.0 6.0	6.0		2.1 2.2	2.2		3 4	3.5	
				Bottom	6	26.2 26.3	26.3	7.7 7.7	7.7	32.3 32.1	32.2	88.6 87.9	88.3	6.0 5.9	6.0	6.0	3.1 3.1	3.1		4 5	4.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at A - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	06:47	Surface	1	23.9 24.0	24.0	8.0 8.0	8.0	29.6 29.2	29.4	85.3 86.1	85.7	6.1 6.1	6.1	6.0	4.3 4.3	4.3	4.3	4 5	4.5	5.0
				Middle	3.5	24.5 24.1	24.3	8.0 8.0	8.0	31.2 31.8	31.5	82.1 82.7	82.4	5.7 5.8	5.8		4.5 4.2	4.4		5 4	4.5	
				Bottom	6	24.1 23.9	24.0	8.1 8.1	8.1	31.8 31.1	31.5	78.7 79.1	78.9	5.5 5.6	5.6	5.6	4.5 4.1	4.3		6 6	6.0	
22-May-15	Cloudy	Moderate	08:34	Surface	1	24.4 24.4	24.4	8.1 8.1	8.1	31.6 31.6	31.6	72.7 72.4	72.6	5.1 5.1	5.1	5.2	0.9 1.0	1.0	2.0	3 3	3.0	4.5
				Middle	3.5	24.4 24.4	24.4	8.1 8.1	8.1	31.9 31.9	31.9	74.5 74.4	74.5	5.2 5.2	5.2		1.2 1.3	1.3		4 5	4.5	
				Bottom	6	24.4 24.4	24.4	8.1 8.1	8.1	32.0 32.1	32.1	74.1 73.9	74.0	5.2 5.1	5.2	5.2	3.6 4.0	3.8		6 6	6.0	
26-May-15	Rainy	Calm	11:44	Surface	1	26.1 26.1	26.1	8.0 8.0	8.0	25.8 25.8	25.8	66.4 65.1	65.8	4.7 4.6	4.7	4.3	3.5 3.6	3.6	4.1	4 3	3.5	5.7
				Middle	3	26.1 25.9	26.0	8.0 8.0	8.0	27.9 28.0	28.0	54.3 53.4	53.9	3.8 3.7	3.8		4.2 4.3	4.3		5 5	5.0	
				Bottom	5	26.1 25.8	26.0	8.0 8.0	8.0	28.8 29.0	28.9	51.0 50.6	50.8	3.5 3.5	3.5	3.5	4.4 4.2	4.3		9 8	8.5	
28-May-15	Rainy	Calm	14:50	Surface	1	26.6 26.5	26.6	7.7 7.7	7.7	27.7 27.9	27.8	64.4 60.5	62.5	4.4 4.2	4.3	4.3	1.1 1.3	1.2	1.3	4 4	4.0	4.8
				Middle	3.5	26.3 26.3	26.3	7.7 7.7	7.7	28.1 28.1	28.1	62.2 61.7	62.0	4.3 4.3	4.3		1.2 1.3	1.3		5 5	5.0	
				Bottom	6	26.3 26.3	26.3	7.7 7.7	7.7	28.6 28.5	28.6	60.4 62.0	61.2	4.2 4.3	4.3	4.3	1.3 1.4	1.4		6 5	5.5	
30-May-15	Fine	Moderate	16:35	Surface	1	27.6 27.6	27.6	8.3 8.3	8.3	24.8 24.9	24.9	112.0 112.2	112.1	7.7 7.7	7.7	7.7	0.7 0.8	0.8	2.0	3 3	3.0	4.2
				Middle	3	27.6 27.6	27.6	8.3 8.3	8.3	24.9 24.9	24.9	110.5 110.2	110.4	7.6 7.6	7.6		1.2 1.1	1.2		5 5	5.0	
				Bottom	5	26.8 26.7	26.8	8.1 8.1	8.1	26.9 27.1	27.0	72.8 72.0	72.4	5.0 5.0	5.0	5.0	3.8 4.1	4.0		4 5	4.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	12:07	Surface	1	24.9 24.9	24.9	8.0 8.0	8.0	31.0 30.9	31.0	79.7 79.4	79.6	5.5 5.5	5.5	5.6	2.1 2.2	2.2	1.7	3 3	3.0	4.7
				Middle	7.5	24.6 24.7	24.7	8.0 8.0	8.0	31.4 31.4	31.4	81.3 81.1	81.2	5.7 5.6	5.7		1.2 1.3	1.3		4 4	4.0	
				Bottom	14	24.5 24.5	24.5	7.9 7.9	7.9	31.8 31.7	31.8	74.3 74.5	74.4	5.2 5.2	5.2	5.2	1.4 1.6	1.5		7 7	7.0	
4-May-15	Fine	Moderate	12:43	Surface	1	26.6 26.5	26.6	8.0 8.0	8.0	27.1 27.1	27.1	97.2 97.2	97.2	6.7 6.7	6.7	6.5	3.6 3.7	3.7	3.7	7 7	7.0	5.8
				Middle	7.5	25.7 25.7	25.7	8.3 8.3	8.3	28.1 28.1	28.1	88.5 88.5	88.5	6.2 6.2	6.2		4.1 3.9	4.0		5 5	5.0	
				Bottom	14	25.4 25.4	25.4	8.3 8.3	8.3	28.8 28.8	28.8	79.1 78.9	79.0	5.5 5.5	5.5	5.5	3.3 3.6	3.5		6 5	5.5	
6-May-15	Fine	Moderate	13:53	Surface	1	25.1 24.9	25.0	8.2 8.3	8.3	27.5 28.0	27.8	98.1 98.4	98.3	6.9 7.0	7.0	7.0	3.7 3.9	3.8	4.2	<2.5 <2.5	<2.5	5.2
				Middle	7.5	25.1 24.8	25.0	8.0 8.0	8.0	27.1 27.9	27.5	99.3 98.8	99.1	7.0 7.0	7.0		4.2 4.1	4.2		3 3	3.0	
				Bottom	14	25.2 24.9	25.1	8.1 8.2	8.2	27.0 27.6	27.3	99.2 98.4	98.8	7.0 7.0	7.0	7.0	4.8 4.6	4.7		10 10	10.0	
8-May-15	Fine	Rough	15:19	Surface	1	24.6 24.7	24.7	8.1 8.1	8.1	32.4 32.6	32.5	73.5 73.8	73.7	5.1 5.1	5.1	5.2	4.1 3.9	4.0	4.5	5 5	5.0	5.0
				Middle	7.5	24.5 25.0	24.8	8.2 8.2	8.2	31.4 31.3	31.4	74.3 74.6	74.5	5.2 5.2	5.2		4.8 4.5	4.7		3 3	3.0	
				Bottom	14	24.9 25.8	25.4	8.1 8.2	8.2	32.7 31.8	32.3	76.8 76.7	76.8	5.3 5.2	5.3	5.3	4.7 4.7	4.7		7 7	7.0	
11-May-15	Fine	Moderate	18:12	Surface	1	25.3 25.2	25.3	7.1 7.1	7.1	26.9 26.9	26.9	80.2 80.1	80.2	5.7 5.7	5.7	5.6	3.0 3.2	3.1	3.1	4 4	4.0	3.2
				Middle	7.5	25.3 25.1	25.2	7.1 7.1	7.1	26.9 27.1	27.0	78.5 77.8	78.2	5.5 5.5	5.5		3.0 3.0	3.0		<2.5 <2.5	<2.5	
				Bottom	14	25.0 25.1	25.1	7.1 7.1	7.1	26.6 26.8	26.7	73.5 76.1	74.8	5.2 5.4	5.3	5.3	3.0 3.2	3.1		3 3	3.0	
13-May-15	Sunny	Moderate	08:54	Surface	1	26.5 27.2	26.9	8.6 8.6	8.6	30.3 30.7	30.5	84.5 89.9	87.2	5.7 6.0	5.9	5.8	3.7 3.3	3.5	3.3	5 6	5.5	4.8
				Middle	7.5	26.9 26.8	26.9	8.6 8.6	8.6	30.2 30.1	30.2	84.0 81.3	82.7	5.7 5.5	5.6		3.5 3.4	3.5		5 5	5.0	
				Bottom	14	26.6 27.2	26.9	8.6 8.6	8.6	28.8 28.6	28.7	86.9 85.6	86.3	5.9 5.8	5.9	5.9	3.1 2.9	3.0		4 4	4.0	
15-May-15	Fine	Moderate	10:29	Surface	1	25.1 25.4	25.3	8.1 8.1	8.1	28.5 28.4	28.5	88.7 88.9	88.8	6.2 6.2	6.2	6.3	3.8 3.9	3.9	4.4	7 7	7.0	5.8
				Middle	7.5	25.1 25.2	25.2	8.2 8.2	8.2	26.4 26.6	26.5	89.6 88.0	88.8	6.4 6.2	6.3		4.2 4.3	4.3		6 5	5.5	
				Bottom	14	25.2 25.3	25.3	8.1 8.1	8.1	28.0 27.9	28.0	83.0 83.8	83.4	5.8 5.9	5.9	5.9	5.1 5.1	5.1		5 5	5.0	
18-May-15	Fine	Moderate	12:56	Surface	1	26.7 26.1	26.4	7.7 7.9	7.8	31.2 31.1	31.2	88.3 87.4	87.9	5.9 5.9	5.9	6.0	1.8 2.0	1.9	3.3	3 3	3.0	5.2
				Middle	5.5	26.0 26.1	26.1	7.5 7.6	7.6	31.2 31.1	31.2	87.7 88.1	87.9	6.0 6.0	6.0		2.8 2.7	2.8		6 5	5.5	
				Bottom	10	25.9 26.0	26.0	7.7 7.8	7.8	31.4 31.2	31.3	87.4 88.1	87.8	6.0 6.0	6.0	6.0	4.8 5.4	5.1		7 7	7.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	14:05	Surface	1	24.1 24.2	24.2	7.9 7.9	7.9	29.3 28.9	29.1	86.6 84.6	85.6	6.2 6.0	6.1	5.8	4.2 4.6	4.4	4.4	3 3	3.0	3.7
				Middle	6.5	23.9 24.1	24.0	8.0 8.0	8.0	32.5 31.1	31.8	78.1 77.0	77.6	5.5 5.4	5.5		4.1 4.4	4.3		3 4	3.5	
				Bottom	12	24.3 24.1	24.2	8.0 8.0	8.0	31.8 32.8	32.3	76.2 74.5	75.4	5.3 5.2	5.3	5.3	4.6 4.1	4.4		4 5	4.5	
22-May-15	Cloudy	Moderate	15:29	Surface	1	24.3 24.3	24.3	8.1 8.1	8.1	31.1 31.1	31.1	73.1 72.6	72.9	5.1 5.1	5.1	5.1	3.1 2.9	3.0	3.6	3 4	3.5	5.2
				Middle	7.5	24.3 24.3	24.3	8.1 8.1	8.1	31.2 31.2	31.2	71.1 71.5	71.3	5.0 5.0	5.0		3.5 3.5	3.5		4 3	3.5	
				Bottom	14	24.3 24.3	24.3	8.1 8.1	8.1	31.4 31.4	31.4	64.7 64.2	64.5	4.5 4.5	4.5	4.5	4.2 4.2	4.2		8 9	8.5	
26-May-15	Rainy	Calm	17:52	Surface	1	26.0 26.0	26.0	8.0 8.0	8.0	25.7 25.7	25.7	88.5 88.2	88.4	6.2 6.2	6.2	6.0	3.7 3.5	3.6	4.6	5 5	5.0	4.3
				Middle	6.5	25.9 25.9	25.9	8.1 8.1	8.1	26.7 26.6	26.7	81.4 81.7	81.6	5.7 5.7	5.7		4.7 4.6	4.7		5 5	5.0	
				Bottom	12	25.8 25.8	25.8	8.0 8.1	8.1	28.5 28.5	28.5	68.7 68.5	68.6	4.8 4.8	4.8	4.8	5.4 5.4	5.4		3 3	3.0	
28-May-15	Rainy	Calm	09:47	Surface	1	26.8 26.5	26.7	7.7 7.8	7.8	24.3 24.3	24.3	71.5 70.7	71.1	5.0 5.0	5.0	4.8	1.7 1.7	1.7	2.9	6 6	6.0	5.7
				Middle	7.5	26.5 26.2	26.4	7.7 7.7	7.7	27.0 26.7	26.9	64.1 65.2	64.7	4.4 4.5	4.5		4.5 4.9	4.7		6 6	6.0	
				Bottom	14	25.8 25.3	25.6	7.7 7.7	7.7	32.4 32.2	32.3	38.8 41.5	40.2	2.6 2.8	2.7	2.7	2.3 2.0	2.2		5 5	5.0	
30-May-15	Fine	Moderate	10:40	Surface	1	27.6 27.6	27.6	8.5 8.5	8.5	23.5 23.5	23.5	130.3 130.2	130.3	9.0 9.0	9.0	7.8	1.7 1.8	1.8	4.2	4 4	4.0	4.3
				Middle	7.5	27.3 27.2	27.3	8.2 8.2	8.2	25.2 25.3	25.3	95.0 94.0	94.5	6.5 6.5	6.5		4.3 4.8	4.6		4 5	4.5	
				Bottom	14	25.6 25.6	25.6	8.0 8.0	8.0	30.3 30.1	30.2	61.7 60.8	61.3	4.3 4.2	4.3	4.3	6.2 6.4	6.3		5 4	4.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	17:26	Surface	1	24.8 24.9	24.9	8.0 8.0	8.0	30.0 31.0	30.5	73.5 74.1	73.8	5.1 5.1	5.1	5.2	1.3 1.3	1.3	1.4	3 4	3.5	5.0
				Middle	7.5	24.7 24.7	24.7	8.0 8.0	8.0	31.2 31.3	31.3	74.6 75.0	74.8	5.2 5.2	5.2		1.5 1.5	1.5		6 6	6.0	
				Bottom	14	24.6 24.6	24.6	7.9 7.9	7.9	31.6 31.6	31.6	72.7 72.0	72.4	5.0 5.0	5.0	5.0	1.5 1.4	1.5		5 6	5.5	
4-May-15	Fine	Moderate	19:26	Surface	1	26.1 26.1	26.1	8.3 8.2	8.3	27.1 27.1	27.1	89.9 89.5	89.7	6.3 6.2	6.3	6.0	3.5 4.0	3.8	3.6	4 4	4.0	4.2
				Middle	7.5	25.5 25.4	25.5	8.4 8.4	8.4	28.0 28.1	28.1	81.6 81.6	81.6	5.7 5.7	5.7		3.7 3.7	3.7		3 3	3.0	
				Bottom	14	25.2 25.2	25.2	8.5 8.5	8.5	28.5 28.5	28.5	78.1 78.4	78.3	5.5 5.5	5.5	5.5	3.5 3.3	3.4		6 5	5.5	
6-May-15	Fine	Moderate	07:18	Surface	1	24.5 24.9	24.7	8.4 8.2	8.3	28.0 27.2	27.6	97.3 99.7	98.5	6.9 7.1	7.0	7.0	2.5 2.5	2.5	2.6	3 3	3.0	5.5
				Middle	7.5	24.8 24.8	24.8	8.2 8.4	8.3	27.4 27.6	27.5	99.1 98.6	98.9	7.0 7.0	7.0		2.1 2.1	2.1		4 4	4.0	
				Bottom	14	24.8 24.7	24.8	8.1 8.4	8.3	27.3 27.8	27.6	99.9 98.6	99.3	7.1 7.0	7.1	7.1	3.2 3.2	3.2		10 9	9.5	
8-May-15	Fine	Rough	08:35	Surface	1	24.7 25.1	24.9	8.0 8.1	8.1	32.5 33.9	33.2	80.5 77.3	78.9	5.6 5.3	5.5	5.4	3.6 3.2	3.4	4.1	3 3	3.0	4.0
				Middle	7.5	24.9 25.3	25.1	8.0 8.0	8.0	31.2 32.0	31.6	78.2 73.4	75.8	5.4 5.0	5.2		4.7 3.8	4.3		3 3	3.0	
				Bottom	14	24.9 25.4	25.2	8.0 8.0	8.0	33.6 32.1	32.9	78.4 73.8	76.1	5.4 5.1	5.3	5.3	5.0 4.1	4.6		6 6	6.0	
11-May-15	Fine	Moderate	11:06	Surface	1	25.6 25.5	25.6	7.0 7.0	7.0	27.0 27.1	27.1	83.5 83.6	83.6	5.9 5.9	5.9	5.9	2.8 3.1	3.0	3.0	4 4	4.0	5.5
				Middle	7	25.5 25.4	25.5	7.1 7.1	7.1	26.1 27.5	26.8	81.3 81.9	81.6	5.7 5.8	5.8		2.9 2.9	2.9		6 6	6.0	
				Bottom	13	25.4 25.3	25.4	7.0 7.0	7.0	27.1 27.1	27.1	78.3 80.7	79.5	5.5 5.7	5.6	5.6	3.0 3.0	3.0		6 7	6.5	
13-May-15	Sunny	Moderate	14:30	Surface	1	26.1 26.6	26.4	8.8 8.7	8.8	29.3 29.5	29.4	82.7 82.8	82.8	5.7 5.6	5.7	5.7	4.5 4.5	4.5	4.3	4 4	4.0	5.3
				Middle	7.5	26.9 26.7	26.8	8.7 8.9	8.8	29.0 30.7	29.9	86.8 81.4	84.1	5.9 5.5	5.7		4.1 4.4	4.3		5 6	5.5	
				Bottom	14	27.0 26.4	26.7	8.8 8.7	8.8	29.6 29.3	29.5	89.3 85.4	87.4	6.0 5.8	5.9	5.9	4.0 4.0	4.0		6 7	6.5	
15-May-15	Fine	Moderate	16:30	Surface	1	25.1 25.1	25.1	8.1 8.1	8.1	27.9 23.7	25.8	81.5 83.2	82.4	5.7 6.0	5.9	6.1	3.1 3.4	3.3	4.5	4 4	4.0	4.8
				Middle	7	25.2 25.2	25.2	8.1 8.1	8.1	27.2 23.7	25.5	87.6 84.2	85.9	6.2 6.1	6.2		3.7 4.1	3.9		3 4	3.5	
				Bottom	13	25.1 25.2	25.2	8.2 8.2	8.2	27.2 27.3	27.3	84.5 84.9	84.7	6.0 6.0	6.0	6.0	6.2 6.3	6.3		7 7	7.0	
18-May-15	Fine	Moderate	19:24	Surface	1	25.8 25.8	25.8	7.9 8.0	8.0	29.7 29.7	29.7	82.4 84.1	83.3	5.7 5.8	5.8	5.6	1.7 1.7	1.7	3.8	4 5	4.5	4.0
				Middle	6.5	26.0 26.0	26.0	7.7 7.8	7.8	30.6 31.4	31.0	79.6 79.6	79.6	5.4 5.4	5.4		4.2 4.1	4.2		3 3	3.0	
				Bottom	12	25.8 25.9	25.9	7.9 8.0	8.0	30.8 31.7	31.3	79.1 81.9	80.5	5.4 5.6	5.5	5.5	5.5 5.7	5.6		5 4	4.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	07:17	Surface	1	24.0 24.2	24.1	8.0 8.0	8.0	30.5 29.5	30.0	86.5 85.7	86.1	6.1 6.1	6.1	5.8	4.3 4.3	4.3	4.3	5 4	4.5	4.5
				Middle	6.5	24.2 24.2	24.2	8.0 8.0	8.0	31.4 31.8	31.6	77.2 75.9	76.6	5.4 5.3	5.4		4.5 4.2	4.4		3 3	3.0	
				Bottom	12	23.9 23.7	23.8	8.1 8.2	8.2	31.6 30.6	31.1	76.6 73.1	74.9	5.4 5.2	5.3	5.3	4.0 4.3	4.2		6 6	6.0	
22-May-15	Cloudy	Moderate	08:58	Surface	1	24.4 24.4	24.4	8.1 8.1	8.1	31.8 31.9	31.9	75.1 75.1	75.1	5.2 5.2	5.2	5.3	2.0 1.9	2.0	2.8	6 6	6.0	5.0
				Middle	7.5	24.4 24.4	24.4	8.1 8.1	8.1	31.9 31.9	31.9	75.4 75.0	75.2	5.3 5.2	5.3		2.5 2.8	2.7		5 5	5.0	
				Bottom	14	24.4 24.4	24.4	8.1 8.1	8.1	32.1 32.1	32.1	73.9 73.7	73.8	5.1 5.1	5.1	5.1	3.8 3.7	3.8		4 4	4.0	
26-May-15	Rainy	Calm	12:06	Surface	1	26.0 26.0	26.0	8.1 8.1	8.1	26.6 26.5	26.6	87.5 88.0	87.8	6.1 6.2	6.2	6.1	4.1 4.2	4.2	4.4	7 7	7.0	5.8
				Middle	7.5	26.0 26.0	26.0	8.1 8.1	8.1	26.9 26.8	26.9	84.3 84.2	84.3	5.9 5.9	5.9		4.4 4.3	4.4		5 4	4.5	
				Bottom	14	25.8 25.8	25.8	8.0 8.0	8.0	28.6 28.6	28.6	69.4 69.7	69.6	4.8 4.8	4.8	4.8	4.8 4.5	4.7		6 6	6.0	
28-May-15	Rainy	Calm	14:25	Surface	1	26.7 26.7	26.7	7.8 7.8	7.8	26.0 26.1	26.1	80.2 81.8	81.0	5.6 5.7	5.7	5.1	1.7 1.8	1.8	2.9	3 3	3.0	5.7
				Middle	7.5	25.9 26.2	26.1	7.7 7.7	7.7	30.2 28.1	29.2	64.3 65.2	64.8	4.4 4.5	4.5		1.6 1.7	1.7		8 7	7.5	
				Bottom	14	25.1 25.1	25.1	7.7 7.7	7.7	33.3 33.3	33.3	49.1 55.4	52.3	3.4 3.8	3.6	3.6	5.0 5.4	5.2		7 6	6.5	
30-May-15	Fine	Moderate	17:05	Surface	1	27.6 27.6	27.6	8.4 8.4	8.4	23.5 23.6	23.6	129.6 129.2	129.4	9.0 8.9	9.0	7.7	1.3 1.2	1.3	3.7	3 4	3.5	5.3
				Middle	7.5	27.2 27.2	27.2	8.2 8.2	8.2	25.2 25.2	25.2	92.4 91.4	91.9	6.4 6.3	6.4		3.1 3.3	3.2		6 6	6.0	
				Bottom	14	25.6 25.6	25.6	8.0 8.0	8.0	30.0 30.0	30.0	60.5 59.9	60.2	4.2 4.1	4.2	4.2	6.7 6.5	6.6		7 6	6.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	10:02	Surface	1	24.3 24.3	24.3	7.8 7.8	7.8	32.5 32.5	32.5	86.6 85.5	86.1	6.0 5.9	6.0	6.0	1.0 1.0	1.0	1.2	6 6	6.0	5.3
				Middle	9.5	24.1 24.1	24.1	7.8 7.8	7.8	32.8 32.7	32.8	85.9 82.7	84.3	6.0 5.8	5.9		1.2 1.2	1.2		5 5	5.0	
				Bottom	18	23.6 23.7	23.7	7.8 7.8	7.8	33.5 33.3	33.4	84.2 83.6	83.9	5.9 5.8	5.9	5.9	1.3 1.5	1.4		5 5	5.0	
4-May-15	Fine	Moderate	11:02	Surface	1	25.2 24.9	25.1	7.7 7.9	7.8	29.5 29.8	29.7	77.4 82.4	79.9	5.4 5.8	5.6	5.6	3.5 3.7	3.6	3.6	4 4	4.0	5.2
				Middle	9	24.2 24.5	24.4	8.1 8.2	8.2	31.3 31.0	31.2	81.0 79.1	80.1	5.7 5.5	5.6		4.1 3.5	3.8		6 5	5.5	
				Bottom	17	24.0 24.5	24.3	8.2 8.2	8.2	31.5 31.0	31.3	77.9 79.4	78.7	5.5 5.6	5.6	5.6	3.6 3.4	3.5		6 6	6.0	
6-May-15	Fine	Moderate	12:10	Surface	1	25.2 25.3	25.3	7.9 8.0	8.0	25.9 26.6	26.3	95.7 99.3	97.5	6.8 7.0	6.9	6.9	3.0 2.9	3.0	4.3	4 4	4.0	5.2
				Middle	9	25.3 25.3	25.3	8.1 8.1	8.1	26.6 26.7	26.7	95.2 99.5	97.4	6.7 7.0	6.9		4.3 3.8	4.1		4 3	3.5	
				Bottom	17	25.3 25.2	25.3	8.2 8.2	8.2	26.8 27.0	26.9	96.5 99.5	98.0	6.8 7.0	6.9	6.9	6.0 5.7	5.9		8 8	8.0	
8-May-15	Fine	Rough	13:30	Surface	1	25.4 25.4	25.4	8.1 8.1	8.1	32.1 32.0	32.1	78.7 76.2	77.5	5.4 5.2	5.3	5.3	4.2 4.2	4.2	4.5	5 5	5.0	4.7
				Middle	9	25.4 25.6	25.5	8.1 8.1	8.1	31.7 32.9	32.3	76.4 77.4	76.9	5.2 5.3	5.3		4.3 4.3	4.3		3 3	3.0	
				Bottom	17	25.1 25.3	25.2	8.1 8.1	8.1	31.4 32.5	32.0	79.4 76.7	78.1	5.5 5.2	5.4	5.4	5.0 5.0	5.0		6 6	6.0	
11-May-15	Fine	Moderate	16:25	Surface	1	24.5 24.3	24.4	8.1 8.1	8.1	33.3 33.2	33.3	87.7 87.6	87.7	6.1 6.1	6.1	6.1	2.9 2.8	2.9	2.9	4 5	4.5	4.2
				Middle	9	24.3 24.4	24.4	8.1 8.1	8.1	33.1 32.8	33.0	85.3 88.6	87.0	5.9 6.1	6.0		2.9 3.1	3.0		6 5	5.5	
				Bottom	17	24.4 24.4	24.4	8.1 8.1	8.1	33.4 33.0	33.2	76.3 75.4	75.9	5.3 5.2	5.3	5.3	2.7 2.8	2.8		<2.5 <2.5	<2.5	
13-May-15	Sunny	Moderate	07:01	Surface	1	26.4 27.0	26.7	8.3 8.3	8.3	29.1 28.5	28.8	80.9 84.2	82.6	5.5 5.7	5.6	5.8	3.2 3.2	3.2	3.6	5 4	4.5	5.2
				Middle	9	26.1 26.3	26.2	8.4 8.7	8.6	30.4 29.2	29.8	85.6 86.5	86.1	5.8 5.9	5.9		4.3 4.2	4.3		4 4	4.0	
				Bottom	17	26.7 27.2	27.0	8.6 8.6	8.6	29.8 30.2	30.0	85.1 83.1	84.1	5.8 5.6	5.7	5.7	3.5 3.1	3.3		7 7	7.0	
15-May-15	Fine	Moderate	08:49	Surface	1	25.1 25.1	25.1	8.0 8.1	8.1	26.9 26.9	26.9	83.3 84.3	83.8	5.9 6.0	6.0	6.0	2.8 2.9	2.9	3.6	4 4	4.0	5.2
				Middle	10	25.2 25.2	25.2	8.1 8.1	8.1	26.8 26.7	26.8	85.0 84.5	84.8	6.0 6.0	6.0		3.1 3.6	3.4		6 5	5.5	
				Bottom	19	25.1 25.1	25.1	8.1 8.1	8.1	26.7 26.7	26.7	85.8 85.5	85.7	6.1 6.1	6.1	6.1	4.5 4.5	4.5		6 6	6.0	
18-May-15	Fine	Moderate	10:57	Surface	1	26.4 25.5	26.0	7.5 7.6	7.6	29.2 29.3	29.3	99.0 97.9	98.5	6.8 6.8	6.8	6.8	1.5 1.6	1.6	2.7	3 3	3.0	4.8
				Middle	11	25.3 25.5	25.4	7.7 7.7	7.7	29.6 29.6	29.6	96.4 97.2	96.8	6.7 6.7	6.7		2.3 2.3	2.3		8 9	8.5	
				Bottom	21	25.0 25.2	25.1	7.7 7.7	7.7	30.0 30.0	30.0	94.4 94.0	94.2	6.6 6.5	6.6	6.6	4.1 4.2	4.2		3 3	3.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	12:22	Surface	1	23.9 24.1	24.0	8.0 8.0	8.0	30.1 29.0	29.6	87.5 86.3	86.9	6.2 6.1	6.2	6.0	3.9 4.3	4.1	4.3	4 4	4.0	5.0
				Middle	11.5	24.3 24.3	24.3	8.0 8.1	8.1	31.1 31.6	31.4	80.7 84.2	82.5	5.7 5.9	5.8		4.3 4.2	4.3		5 5	5.0	
				Bottom	22	24.3 24.2	24.3	8.0 8.1	8.1	30.9 32.0	31.5	79.2 83.6	81.4	5.6 5.8	5.7	5.7	4.7 4.0	4.4		6 6	6.0	
22-May-15	Cloudy	Moderate	13:50	Surface	1	24.5 24.5	24.5	8.1 8.1	8.1	29.8 29.8	29.8	87.0 86.8	86.9	6.1 6.1	6.1	5.9	1.1 0.9	1.0	2.9	7 7	7.0	5.7
				Middle	10	24.5 24.5	24.5	8.1 8.1	8.1	30.5 30.5	30.5	80.0 79.7	79.9	5.6 5.6	5.6		2.8 3.2	3.0		6 6	6.0	
				Bottom	19	24.5 24.5	24.5	8.1 8.1	8.1	30.7 30.8	30.8	74.7 74.2	74.5	5.2 5.2	5.2	5.2	4.5 4.9	4.7		4 4	4.0	
26-May-15	Rainy	Calm	17:14	Surface	1	26.1 26.1	26.1	8.0 8.0	8.0	25.2 25.2	25.2	78.4 78.0	78.2	5.5 5.5	5.5	5.4	3.2 3.3	3.3	3.7	7 7	7.0	5.8
				Middle	9	26.0 26.0	26.0	8.0 8.0	8.0	27.0 27.0	27.0	74.2 74.3	74.3	5.2 5.2	5.2		3.3 3.2	3.3		6 6	6.0	
				Bottom	17	25.9 25.9	25.9	8.1 8.1	8.1	28.3 28.2	28.3	70.4 70.8	70.6	4.9 4.9	4.9	4.9	4.5 4.6	4.6		5 4	4.5	
28-May-15	Rainy	Calm	08:10	Surface	1	26.2 26.2	26.2	7.7 7.7	7.7	29.3 29.2	29.3	84.8 73.4	79.1	5.8 5.0	5.4	5.2	0.6 0.6	0.6	2.0	6 6	6.0	5.8
				Middle	9	25.8 25.3	25.6	7.7 7.8	7.8	30.7 30.0	30.4	73.0 69.9	71.5	5.0 4.9	5.0		1.3 1.2	1.3		6 5	5.5	
				Bottom	17	24.9 25.1	25.0	7.8 7.8	7.8	33.2 33.6	33.4	68.0 67.5	67.8	4.7 4.6	4.7	4.7	4.3 4.1	4.2		6 6	6.0	
30-May-15	Fine	Moderate	09:01	Surface	1	27.4 27.3	27.4	8.1 8.1	8.1	23.4 23.5	23.5	87.6 87.3	87.5	6.1 6.1	6.1	5.7	2.2 2.3	2.3	4.1	6 7	6.5	5.7
				Middle	9	26.7 26.7	26.7	8.2 8.2	8.2	24.8 24.8	24.8	76.2 76.5	76.4	5.3 5.3	5.3		3.7 3.8	3.8		5 5	5.0	
				Bottom	17	26.3 26.3	26.3	8.1 8.1	8.1	26.3 26.0	26.2	64.8 66.0	65.4	4.5 4.6	4.6	4.6	6.1 6.4	6.3		5 6	5.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	19:20	Surface	1	24.3 24.3	24.3	7.8 7.9	7.9	32.5 32.4	32.5	75.7 75.0	75.4	5.3 5.2	5.3	5.3	0.6 0.6	0.6	0.7	6 5	5.5	4.7
				Middle	10.5	24.1 24.2	24.2	7.9 7.9	7.9	32.8 32.6	32.7	75.2 75.2	75.2	5.2 5.2	5.2		0.5 0.6	0.6		5 4	4.5	
				Bottom	20	23.7 23.8	23.8	7.9 7.9	7.9	33.3 33.2	33.3	74.7 74.9	74.8	5.2 5.2	5.2	5.2	1.0 0.9	1.0		4 4	4.0	
4-May-15	Fine	Moderate	17:40	Surface	1	24.8 24.7	24.8	8.2 8.2	8.2	29.6 29.6	29.6	81.9 81.9	81.9	5.7 5.8	5.8	5.8	3.7 3.5	3.6	3.6	5 6	5.5	5.2
				Middle	10	24.4 24.4	24.4	8.6 8.6	8.6	30.1 30.2	30.2	80.7 80.5	80.6	5.7 5.7	5.7		3.9 3.3	3.6		7 7	7.0	
				Bottom	19	24.0 24.0	24.0	8.9 8.9	8.9	30.8 30.8	30.8	79.2 79.3	79.3	5.6 5.6	5.6	5.6	3.2 3.8	3.5		3 3	3.0	
6-May-15	Fine	Moderate	05:34	Surface	1	25.5 25.1	25.3	7.9 8.0	8.0	26.3 26.9	26.6	97.9 98.3	98.1	6.9 7.0	7.0	7.1	2.2 2.2	2.2	2.9	6 6	6.0	5.8
				Middle	9	25.2 25.1	25.2	8.0 7.9	8.0	26.9 27.1	27.0	100.3 100.4	100.4	7.1 7.1	7.1		2.4 2.7	2.6		4 5	4.5	
				Bottom	17	24.8 24.9	24.9	8.1 8.2	8.2	27.6 27.6	27.6	99.2 99.5	99.4	7.0 7.0	7.0	7.0	3.6 4.2	3.9		7 7	7.0	
8-May-15	Fine	Rough	06:45	Surface	1	25.5 25.5	25.5	8.1 8.1	8.1	31.8 32.6	32.2	84.5 84.9	84.7	5.8 5.8	5.8	5.8	4.7 5.0	4.9	4.4	6 6	6.0	5.8
				Middle	9	25.3 25.5	25.4	8.1 8.1	8.1	31.5 32.0	31.8	83.5 85.1	84.3	5.7 5.8	5.8		3.9 4.2	4.1		6 6	6.0	
				Bottom	17	25.2 25.5	25.4	8.1 8.0	8.1	32.6 32.9	32.8	85.0 85.6	85.3	5.8 5.8	5.8	5.8	4.2 4.2	4.2		5 6	5.5	
11-May-15	Fine	Moderate	09:20	Surface	1	24.8 24.7	24.8	8.0 8.0	8.0	33.8 34.0	33.9	90.9 90.8	90.9	6.2 6.2	6.2	6.2	2.8 2.8	2.8	2.7	4 4	4.0	5.5
				Middle	9	24.6 24.8	24.7	8.0 8.0	8.0	33.2 32.9	33.1	89.3 89.6	89.5	6.2 6.2	6.2		2.6 2.7	2.7		5 6	5.5	
				Bottom	17	24.2 24.5	24.4	8.1 8.1	8.1	33.6 33.3	33.5	78.8 77.4	78.1	5.5 5.3	5.4	5.4	2.7 2.7	2.7		7 7	7.0	
13-May-15	Sunny	Moderate	12:32	Surface	1	26.9 26.3	26.6	8.6 8.7	8.7	29.6 30.4	30.0	84.2 89.4	86.8	5.7 6.1	5.9	5.9	3.2 3.3	3.3	3.5	4 4	4.0	4.5
				Middle	9	27.0 27.3	27.2	8.6 8.6	8.6	29.6 30.7	30.2	83.4 88.8	86.1	5.6 5.9	5.8		3.4 3.0	3.2		3 3	3.0	
				Bottom	17	26.6 26.5	26.6	8.7 8.6	8.7	30.9 29.2	30.1	83.3 81.1	82.2	5.6 5.5	5.6	5.6	3.9 4.2	4.1		6 7	6.5	
15-May-15	Fine	Moderate	14:52	Surface	1	25.2 25.4	25.3	8.1 8.1	8.1	26.8 26.8	26.8	85.0 85.1	85.1	6.0 6.0	6.0	6.0	2.4 2.3	2.4	4.6	5 5	5.0	5.3
				Middle	11	25.2 25.3	25.3	8.1 8.1	8.1	27.0 27.5	27.3	79.8 87.8	83.8	5.6 6.2	5.9		3.3 3.6	3.5		5 5	5.0	
				Bottom	21	25.3 25.2	25.3	8.1 8.1	8.1	26.4 26.4	26.4	84.0 83.8	83.9	5.9 5.9	5.9	5.9	7.1 8.8	8.0		6 6	6.0	
18-May-15	Fine	Moderate	17:34	Surface	1	26.1 26.1	26.1	7.7 7.8	7.8	29.7 30.3	30.0	86.3 86.0	86.2	5.9 5.9	5.9	5.8	4.9 4.9	4.9	4.2	4 4	4.0	4.7
				Middle	11.5	26.3 26.2	26.3	7.9 7.9	7.9	30.6 30.4	30.5	82.9 84.7	83.8	5.6 5.8	5.7		5.4 5.4	5.4		4 4	4.0	
				Bottom	22	26.3 26.1	26.2	7.9 7.9	7.9	31.8 32.2	32.0	77.2 80.1	78.7	5.2 5.4	5.3	5.3	2.4 2.3	2.4		6 6	6.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at C2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	05:39	Surface	1	24.0 23.8	23.9	7.9 7.9	7.9	30.8 30.9	30.9	88.0 86.6	87.3	6.2 6.1	6.2	6.0	4.1 4.5	4.3	4.3	4 4	4.0	4.5
				Middle	11.5	23.6 24.2	23.9	8.0 8.0	8.0	31.7 31.6	31.7	79.7 83.6	81.7	5.6 5.9	5.8		4.3 4.3	4.3		3 4	3.5	
				Bottom	22	23.9 24.3	24.1	8.0 8.1	8.1	32.1 32.2	32.2	79.1 83.7	81.4	5.6 5.8	5.7	5.7	4.4 4.1	4.3		6 6	6.0	
22-May-15	Cloudy	Moderate	07:38	Surface	1	24.6 24.6	24.6	8.1 8.1	8.1	30.5 30.5	30.5	89.3 88.9	89.1	6.3 6.2	6.3	6.0	1.5 1.5	1.5	3.1	6 6	6.0	4.8
				Middle	10	24.6 24.6	24.6	8.1 8.1	8.1	31.2 31.2	31.2	82.2 81.6	81.9	5.7 5.7	5.7		2.8 3.2	3.0		4 4	4.0	
				Bottom	19	24.6 24.6	24.6	8.1 8.1	8.1	31.4 31.5	31.5	79.3 79.2	79.3	5.5 5.5	5.5	5.5	5.1 4.7	4.9		5 4	4.5	
26-May-15	Rainy	Calm	10:48	Surface	1	26.2 26.1	26.2	7.9 8.0	8.0	24.9 26.1	25.5	79.6 76.8	78.2	5.6 5.4	5.5	5.4	3.3 3.6	3.5	4.2	7 6	6.5	5.8
				Middle	9	26.0 26.1	26.1	7.9 8.0	8.0	27.3 27.7	27.5	74.5 75.2	74.9	5.2 5.2	5.2		3.9 3.7	3.8		4 4	4.0	
				Bottom	17	25.9 26.0	26.0	8.0 7.9	8.0	28.1 28.4	28.3	73.4 73.2	73.3	5.1 5.1	5.1	5.1	5.0 5.3	5.2		7 7	7.0	
28-May-15	Rainy	Calm	16:02	Surface	1	26.6 26.6	26.6	7.8 7.8	7.8	27.6 27.6	27.6	68.0 67.7	67.9	4.7 4.7	4.7	4.8	1.1 1.1	1.1	4.2	3 3	3.0	3.5
				Middle	9	24.7 25.9	25.3	7.9 7.8	7.9	33.8 31.1	32.5	69.6 69.3	69.5	4.8 4.7	4.8		6.2 6.4	6.3		4 4	4.0	
				Bottom	17	24.8 24.7	24.8	7.8 7.9	7.9	33.8 33.8	33.8	62.3 59.4	60.9	4.3 4.1	4.2	4.2	5.2 5.1	5.2		4 3	3.5	
30-May-15	Fine	Moderate	15:29	Surface	1	27.2 27.1	27.2	8.1 8.1	8.1	23.5 23.6	23.6	87.1 87.2	87.2	6.1 6.1	6.1	5.7	2.8 3.2	3.0	4.4	3 3	3.0	5.3
				Middle	9	26.7 26.7	26.7	8.3 8.3	8.3	24.8 24.8	24.8	76.3 76.2	76.3	5.3 5.3	5.3		3.9 3.9	3.9		6 7	6.5	
				Bottom	17	26.3 26.4	26.4	8.2 8.2	8.2	25.9 25.8	25.9	68.0 68.5	68.3	4.7 4.8	4.8	4.8	6.3 6.0	6.2		6 7	6.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD17 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	10:32	Surface	1	24.4 24.4	24.4	7.8 7.8	7.8	32.4 32.4	32.4	54.5 54.3	54.4	3.8 3.8	3.8	3.8	1.6 1.6	1.6	1.3	6 6	6.0	5.2
				Middle	7	24.0 24.2	24.1	7.8 7.8	7.8	32.9 32.7	32.8	54.0 54.2	54.1	3.8 3.8	3.8		1.2 1.2	1.2		5 5	5.0	
				Bottom	13	23.6 23.7	23.7	7.8 7.8	7.8	33.3 33.2	33.3	55.3 54.1	54.7	3.9 3.8	3.9	3.9	1.1 1.2	1.2		5 4	4.5	
4-May-15	Fine	Moderate	11:25	Surface	1	25.3 24.8	25.1	7.9 7.9	7.9	29.8 30.1	30.0	84.9 83.0	84.0	5.9 5.8	5.9	5.9	3.6 3.6	3.6	3.7	4 4	4.0	5.7
				Middle	7	25.4 24.8	25.1	8.0 8.0	8.0	30.1 30.4	30.3	83.3 82.1	82.7	5.8 5.7	5.8		3.9 3.5	3.7		5 5	5.0	
				Bottom	13	24.5 24.6	24.6	8.0 8.0	8.0	30.9 30.8	30.9	82.9 82.9	82.9	5.8 5.8	5.8	5.8	3.7 3.7	3.7		8 8	8.0	
6-May-15	Fine	Moderate	12:36	Surface	1	25.3 25.5	25.4	7.9 8.0	8.0	26.6 26.6	26.6	93.0 102.8	97.9	6.6 7.2	6.9	7.0	4.5 4.2	4.4	3.4	<2.5 <2.5	<2.5	4.0
				Middle	7	25.2 25.3	25.3	8.1 8.1	8.1	27.0 26.9	27.0	97.8 100.9	99.4	6.9 7.1	7.0		3.6 3.5	3.6		3 3	3.0	
				Bottom	13	24.7 25.1	24.9	8.3 8.1	8.2	28.2 27.3	27.8	98.1 100.5	99.3	6.9 7.1	7.0	7.0	2.0 2.1	2.1		7 6	6.5	
8-May-15	Fine	Rough	13:51	Surface	1	25.2 24.5	24.9	8.1 8.1	8.1	33.0 33.2	33.1	87.1 74.9	81.0	6.0 5.2	5.6	5.5	3.2 3.2	3.2	4.2	6 6	6.0	5.0
				Middle	7	25.4 25.1	25.3	8.1 8.1	8.1	33.1 33.0	33.1	76.3 77.3	76.8	5.2 5.3	5.3		3.8 3.9	3.9		4 5	4.5	
				Bottom	13	25.0 25.0	25.0	8.1 8.1	8.1	32.7 33.5	33.1	74.8 78.9	76.9	5.1 5.4	5.3	5.3	5.6 5.6	5.6		5 4	4.5	
11-May-15	Fine	Moderate	16:49	Surface	1	25.2 25.1	25.2	8.1 8.1	8.1	33.0 33.6	33.3	75.0 74.8	74.9	5.1 5.1	5.1	5.5	3.2 3.2	3.2	3.0	<2.5 <2.5	<2.5	3.5
				Middle	7	24.9 25.0	25.0	8.1 8.1	8.1	32.1 32.3	32.2	86.1 85.5	85.8	5.9 5.9	5.9		2.9 3.0	3.0		5 5	5.0	
				Bottom	13	25.1 25.0	25.1	8.1 8.1	8.1	32.3 32.4	32.4	82.7 84.2	83.5	5.7 5.8	5.8	5.8	2.9 2.8	2.9		3 3	3.0	
13-May-15	Sunny	Moderate	07:25	Surface	1	27.3 27.1	27.2	8.4 8.3	8.4	30.7 30.0	30.4	87.9 89.2	88.6	5.9 6.0	6.0	6.0	4.4 4.2	4.3	3.8	3 3	3.0	4.3
				Middle	7	27.0 26.7	26.9	8.5 8.4	8.5	29.9 28.9	29.4	87.5 87.5	87.5	5.9 6.0	6.0		3.3 3.4	3.4		6 5	5.5	
				Bottom	13	26.6 26.1	26.4	8.5 8.4	8.5	29.6 30.6	30.1	85.8 80.1	83.0	5.8 5.5	5.7	5.7	3.7 3.5	3.6		4 5	4.5	
15-May-15	Fine	Moderate	09:17	Surface	1	25.4 25.3	25.4	8.1 8.1	8.1	25.7 25.6	25.7	84.7 89.6	87.2	6.0 6.4	6.2	6.2	3.1 3.3	3.2	4.4	6 6	6.0	4.8
				Middle	7	25.2 25.3	25.3	8.1 8.1	8.1	27.0 23.6	25.3	85.6 82.9	84.3	6.1 6.0	6.1		5.1 5.3	5.2		5 5	5.0	
				Bottom	13	25.4 25.4	25.4	8.1 8.1	8.1	25.7 25.9	25.8	94.2 88.1	91.2	6.7 6.2	6.5	6.5	4.8 4.9	4.9		4 3	3.5	
18-May-15	Fine	Moderate	11:25	Surface	1	25.9 25.4	25.7	7.5 7.6	7.6	29.4 29.3	29.4	91.2 89.8	90.5	6.3 6.2	6.3	6.3	1.7 1.8	1.8	1.9	5 5	5.0	4.2
				Middle	7	25.2 25.2	25.2	7.6 7.6	7.6	29.7 29.7	29.7	90.3 88.0	89.2	6.3 6.1	6.2		1.9 1.9	1.9		4 5	4.5	
				Bottom	13	24.8 24.9	24.9	7.8 7.8	7.8	29.9 29.8	29.9	87.5 85.7	86.6	6.1 6.0	6.1	6.1	1.9 1.9	1.9		3 3	3.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD17 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	12:46	Surface	1	24.0 23.8	23.9	8.0 8.0	8.0	29.9 31.1	30.5	85.5 92.1	88.8	6.1 6.5	6.3	6.0	4.4 4.5	4.5	4.6	5 5	5.0	5.3
				Middle	7	24.0 24.0	24.0	8.0 8.0	8.0	32.2 31.6	31.9	80.8 81.3	81.1	5.7 5.7	5.7		4.6 4.8	4.7		7 7	7.0	
				Bottom	13	23.9 23.8	23.9	8.1 8.0	8.1	31.8 31.6	31.7	78.3 79.5	78.9	5.5 5.6	5.6	5.6	4.3 4.6	4.5		4 4	4.0	
22-May-15	Cloudy	Moderate	14:07	Surface	1	24.4 24.4	24.4	8.1 8.1	8.1	31.1 31.1	31.1	77.9 78.0	78.0	5.5 5.5	5.5	5.4	1.1 1.0	1.1	1.8	4 4	4.0	4.7
				Middle	7	24.4 24.4	24.4	8.1 8.1	8.1	31.1 31.1	31.1	74.3 74.5	74.4	5.2 5.2	5.2		1.7 1.5	1.6		7 7	7.0	
				Bottom	13	24.4 24.4	24.4	8.1 8.1	8.1	31.2 31.3	31.3	71.6 71.3	71.5	5.0 5.0	5.0	5.0	2.5 2.8	2.7		3 3	3.0	
26-May-15	Rainy	Calm	17:24	Surface	1	26.0 26.0	26.0	8.0 8.0	8.0	27.1 27.2	27.2	73.1 73.4	73.3	5.1 5.1	5.1	4.8	2.7 2.4	2.6	4.1	6 6	6.0	5.8
				Middle	7	25.8 25.8	25.8	8.1 8.1	8.1	28.8 28.8	28.8	62.8 63.1	63.0	4.4 4.4	4.4		4.3 4.1	4.2		3 4	3.5	
				Bottom	13	25.7 25.7	25.7	8.1 8.1	8.1	29.2 29.2	29.2	62.9 63.0	63.0	4.4 4.4	4.4	4.4	5.5 5.6	5.6		8 8	8.0	
28-May-15	Rainy	Calm	08:32	Surface	1	25.6 25.6	25.6	7.7 7.7	7.7	31.2 30.3	30.8	61.8 65.7	63.8	4.2 4.5	4.4	4.1	1.5 1.6	1.6	3.4	4 4	4.0	5.7
				Middle	7	25.3 25.2	25.3	7.8 7.8	7.8	33.0 32.7	32.9	55.0 55.3	55.2	3.8 3.8	3.8		2.9 3.0	3.0		6 6	6.0	
				Bottom	13	25.1 25.9	25.5	7.8 7.8	7.8	33.1 33.1	33.1	55.4 56.7	56.1	3.8 3.8	3.8	3.8	5.6 5.6	5.6		7 7	7.0	
30-May-15	Fine	Moderate	09:24	Surface	1	26.8 26.8	26.8	8.1 8.1	8.1	26.0 26.0	26.0	88.2 91.2	89.7	6.1 6.3	6.2	5.8	3.2 3.8	3.5	4.1	4 4	4.0	5.2
				Middle	7	25.8 25.8	25.8	8.2 8.2	8.2	28.8 28.6	28.7	77.1 78.4	77.8	5.3 5.4	5.4		3.2 3.1	3.2		9 8	8.5	
				Bottom	13	25.2 25.2	25.2	7.6 7.6	7.6	27.2 27.2	27.2	57.5 54.3	55.9	4.1 3.8	4.0	4.0	5.6 5.5	5.6		3 3	3.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD17 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	18:55	Surface	1	24.4 24.3	24.4	7.8 7.8	7.8	32.5 32.6	32.6	51.9 51.0	51.5	3.6 3.6	3.6	3.7	1.0 1.2	1.1	1.0	5 5	5.0	4.8
				Middle	7	24.0 24.1	24.1	7.8 7.8	7.8	32.1 32.8	32.5	52.7 51.6	52.2	3.7 3.6	3.7		0.6 0.7	0.7		5 5	5.0	
				Bottom	13	23.7 23.7	23.7	7.8 7.8	7.8	33.3 33.2	33.3	52.2 52.0	52.1	3.7 3.6	3.7	3.7	1.2 1.2	1.2		4 5	4.5	
4-May-15	Fine	Moderate	18:01	Surface	1	24.7 24.7	24.7	8.3 8.3	8.3	29.6 29.6	29.6	81.0 81.3	81.2	5.7 5.7	5.7	5.6	3.4 4.0	3.7	3.6	4 5	4.5	4.8
				Middle	7	24.1 24.1	24.1	8.8 8.8	8.8	30.4 30.4	30.4	75.8 75.2	75.5	5.4 5.3	5.4		3.4 3.6	3.5		4 5	4.5	
				Bottom	13	24.0 24.0	24.0	8.6 8.6	8.6	30.4 30.4	30.4	74.9 74.8	74.9	5.3 5.3	5.3	5.3	3.7 3.6	3.7		6 5	5.5	
6-May-15	Fine	Moderate	05:58	Surface	1	25.5 25.0	25.3	7.8 7.9	7.9	26.5 27.0	26.8	98.8 97.8	98.3	7.0 6.9	7.0	7.1	3.7 3.9	3.8	4.4	4 4	4.0	5.7
				Middle	7	25.1 25.0	25.1	8.1 8.2	8.2	27.3 27.5	27.4	100.1 98.9	99.5	7.1 7.0	7.1		4.1 4.2	4.2		3 3	3.0	
				Bottom	13	24.7 24.8	24.8	8.3 8.3	8.3	28.2 27.9	28.1	98.1 99.3	98.7	6.9 7.0	7.0	7.0	5.2 5.3	5.3		10 10	10.0	
8-May-15	Fine	Rough	07:06	Surface	1	25.1 24.7	24.9	8.0 8.1	8.1	32.3 33.1	32.7	80.8 80.5	80.7	5.6 5.5	5.6	5.6	4.2 4.8	4.5	4.2	6 6	6.0	5.7
				Middle	7	25.1 24.9	25.0	8.1 8.1	8.1	32.5 32.6	32.6	80.3 81.4	80.9	5.5 5.6	5.6		4.4 4.0	4.2		4 4	4.0	
				Bottom	13	25.2 24.9	25.1	8.1 8.1	8.1	32.3 33.0	32.7	80.3 82.5	81.4	5.5 5.7	5.6	5.6	3.7 3.8	3.8		7 7	7.0	
11-May-15	Fine	Moderate	09:45	Surface	1	25.5 25.0	25.3	8.1 8.1	8.1	33.0 33.1	33.1	82.2 82.4	82.3	5.6 5.6	5.6	5.9	3.0 3.1	3.1	2.9	5 5	5.0	5.2
				Middle	7	25.8 25.2	25.5	8.0 8.1	8.1	33.2 33.9	33.6	90.7 89.8	90.3	6.1 6.1	6.1		2.8 2.6	2.7		6 7	6.5	
				Bottom	13	25.3 25.2	25.3	8.1 8.1	8.1	33.6 33.9	33.8	87.6 88.6	88.1	6.0 6.0	6.0	6.0	3.0 2.8	2.9		4 4	4.0	
13-May-15	Sunny	Moderate	12:56	Surface	1	26.5 26.8	26.7	8.9 8.7	8.8	28.8 29.9	29.4	83.5 89.3	86.4	5.7 6.0	5.9	5.8	3.1 3.2	3.2	3.5	7 7	7.0	5.0
				Middle	7	26.4 27.0	26.7	8.7 8.8	8.8	28.5 29.3	28.9	82.4 83.2	82.8	5.7 5.6	5.7		4.1 4.0	4.1		4 4	4.0	
				Bottom	13	26.3 27.1	26.7	8.8 8.9	8.9	29.6 29.8	29.7	84.6 85.2	84.9	5.8 5.7	5.8	5.8	3.3 3.3	3.3		4 4	4.0	
15-May-15	Fine	Moderate	15:20	Surface	1	25.2 25.4	25.3	8.1 8.1	8.1	27.4 27.4	27.4	82.3 81.6	82.0	5.8 5.7	5.8	5.9	2.8 2.6	2.7	4.4	3 4	3.5	3.8
				Middle	8	25.4 25.6	25.5	8.1 8.1	8.1	28.7 28.0	28.4	82.2 89.2	85.7	5.7 6.2	6.0		3.7 3.7	3.7		4 4	4.0	
				Bottom	15	25.4 25.7	25.6	8.1 8.1	8.1	30.4 30.9	30.7	82.4 89.9	86.2	5.7 6.2	6.0	6.0	6.7 6.9	6.8		4 4	4.0	
18-May-15	Fine	Moderate	18:00	Surface	1	26.1 26.1	26.1	7.7 7.8	7.8	30.4 30.3	30.4	86.0 85.5	85.8	5.9 5.8	5.9	5.7	2.5 2.5	2.5	3.2	5 6	5.5	5.7
				Middle	7.5	26.1 26.1	26.1	7.8 7.8	7.8	30.9 30.8	30.9	79.5 79.3	79.4	5.4 5.4	5.4		3.4 3.4	3.4		5 5	5.0	
				Bottom	14	26.1 26.1	26.1	8.0 7.8	7.9	31.4 30.6	31.0	76.0 75.7	75.9	5.2 5.2	5.2	5.2	3.7 3.5	3.6		6 7	6.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD17 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	05:58	Surface	1	24.0 24.0	24.0	8.0 8.0	8.0	29.8 29.8	29.8	86.4 91.2	88.8	6.1 6.5	6.3	6.0	4.0 4.1	4.1	4.4	5 6	5.5	5.5
				Middle	7	23.8 24.1	24.0	8.0 8.0	8.0	32.2 31.6	31.9	79.9 80.4	80.2	5.6 5.6	5.6		4.6 4.5	4.6		7 7	7.0	
				Bottom	13	24.0 24.1	24.1	8.1 8.1	8.1	31.7 31.3	31.5	78.3 79.8	79.1	5.5 5.6	5.6	5.6	4.3 4.6	4.5		4 4	4.0	
22-May-15	Cloudy	Moderate	07:52	Surface	1	24.4 24.4	24.4	8.1 8.1	8.1	31.8 31.8	31.8	79.1 77.8	78.5	5.5 5.4	5.5	5.5	1.0 0.8	0.9	1.9	5 5	5.0	5.8
				Middle	7	24.4 24.4	24.4	8.1 8.1	8.1	31.8 31.8	31.8	77.6 77.5	77.6	5.4 5.4	5.4		1.9 2.3	2.1		7 6	6.5	
				Bottom	13	24.4 24.4	24.4	8.1 8.1	8.1	31.9 32.0	32.0	78.3 77.3	77.8	5.5 5.4	5.5	5.5	2.7 2.5	2.6		6 6	6.0	
26-May-15	Rainy	Calm	11:03	Surface	1	25.9 25.9	25.9	8.1 8.1	8.1	26.4 26.7	26.6	78.3 77.0	77.7	5.5 5.4	5.5	5.3	2.9 2.6	2.8	4.6	5 6	5.5	5.3
				Middle	7	25.9 25.9	25.9	8.1 8.1	8.1	28.0 28.0	28.0	73.8 73.6	73.7	5.1 5.1	5.1		4.5 4.2	4.4		4 5	4.5	
				Bottom	13	25.9 25.9	25.9	8.1 8.1	8.1	28.3 28.3	28.3	71.3 71.2	71.3	4.9 4.9	4.9	4.9	6.0 6.9	6.5		6 6	6.0	
28-May-15	Rainy	Calm	15:19	Surface	1	26.7 26.5	26.6	7.7 7.7	7.7	27.4 28.1	27.8	54.4 55.1	54.8	3.7 3.8	3.8	3.9	1.2 1.4	1.3	3.1	5 6	5.5	5.2
				Middle	7	25.4 25.5	25.5	7.8 7.8	7.8	32.3 32.1	32.2	56.4 55.1	55.8	3.9 3.8	3.9		3.3 3.2	3.3		4 4	4.0	
				Bottom	13	24.8 24.8	24.8	7.8 7.8	7.8	33.6 33.6	33.6	46.6 56.5	51.6	3.2 3.9	3.6	3.6	4.8 4.5	4.7		6 6	6.0	
30-May-15	Fine	Moderate	15:49	Surface	1	26.8 26.8	26.8	8.1 8.1	8.1	26.2 26.3	26.3	92.7 95.6	94.2	6.4 6.6	6.5	6.0	2.4 2.8	2.6	4.2	4 4	4.0	3.7
				Middle	7	25.8 25.8	25.8	8.2 8.2	8.2	28.5 28.3	28.4	77.3 77.8	77.6	5.4 5.4	5.4		5.0 5.1	5.1		3 3	3.0	
				Bottom	13	25.2 25.1	25.2	7.6 7.7	7.7	27.1 27.3	27.2	64.5 65.1	64.8	4.6 4.6	4.6	4.6	5.0 4.9	5.0		4 4	4.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	13:11	Surface	1	24.8 24.7	24.8	7.9 7.9	7.9	32.2 32.1	32.2	57.8 56.3	57.1	4.0 3.9	4.0	4.0	0.9 0.9	0.9	1.1	4 4	4.0	5.2
				Middle	3	24.7 24.7	24.7	7.9 7.9	7.9	32.1 32.1	32.1	55.9 55.2	55.6	3.9 3.8	3.9		1.2 1.2	1.2		5 4	4.5	
				Bottom	5	24.6 24.6	24.6	7.9 7.9	7.9	32.2 32.3	32.3	54.8 55.3	55.1	3.8 3.8	3.8	3.8	1.3 1.3	1.3		7 7	7.0	
4-May-15	Fine	Moderate	13:59	Surface	1	26.3 26.3	26.3	8.1 8.1	8.1	28.3 28.3	28.3	82.2 82.2	82.2	5.7 5.7	5.7	5.7	3.7 3.6	3.7	3.7	6 6	6.0	5.8
				Middle	3.5	25.7 25.7	25.7	8.2 8.2	8.2	28.7 28.7	28.7	81.6 81.5	81.6	5.7 5.7	5.7		3.9 3.6	3.8		4 4	4.0	
				Bottom	6	25.5 25.5	25.5	8.2 8.2	8.2	28.9 28.9	28.9	81.1 81.2	81.2	5.6 5.7	5.7	5.7	3.6 3.8	3.7		7 8	7.5	
6-May-15	Fine	Moderate	15:14	Surface	1	24.5 24.4	24.5	8.4 8.4	8.4	28.6 28.8	28.7	98.1 98.2	98.2	7.0 7.0	7.0	7.0	1.3 1.2	1.3	3.9	6 6	6.0	4.5
				Middle	3.5	24.5 24.5	24.5	8.4 7.7	8.1	28.9 28.7	28.8	98.4 97.6	98.0	7.0 6.9	7.0		4.5 4.9	4.7		3 3	3.0	
				Bottom	6	24.5 24.5	24.5	8.4 7.7	8.1	29.4 29.8	29.6	98.7 97.8	98.3	7.0 6.9	7.0	7.0	6.2 5.4	5.8		5 4	4.5	
8-May-15	Fine	Rough	16:44	Surface	1	24.4 25.6	25.0	8.1 8.1	8.1	31.8 29.0	30.4	75.8 75.1	75.5	5.3 5.2	5.3	5.3	3.2 3.3	3.3	4.4	4 4	4.0	5.0
				Middle	3.5	25.0 25.2	25.1	8.1 8.0	8.1	29.8 30.6	30.2	75.5 74.0	74.8	5.3 5.1	5.2		4.1 4.8	4.5		6 6	6.0	
				Bottom	6	25.3 25.3	25.3	8.1 8.1	8.1	29.9 31.1	30.5	73.8 73.9	73.9	5.1 5.1	5.1	5.1	4.9 6.1	5.5		5 5	5.0	
11-May-15	Fine	Moderate	19:31	Surface	1	25.4 25.4	25.4	6.8 6.8	6.8	27.9 27.9	27.9	91.3 91.0	91.2	6.4 6.4	6.4	6.5	2.8 2.7	2.8	3.0	3 3	3.0	4.7
				Middle	3.5	25.2 25.1	25.2	6.8 6.7	6.8	28.1 28.1	28.1	91.6 91.9	91.8	6.4 6.5	6.5		2.9 3.0	3.0		5 5	5.0	
				Bottom	6	25.1 25.2	25.2	6.7 6.7	6.7	28.8 28.5	28.7	74.8 73.1	74.0	5.2 5.1	5.2	5.2	3.2 3.1	3.2		6 6	6.0	
13-May-15	Sunny	Moderate	10:13	Surface	1	27.0 26.1	26.6	8.7 8.6	8.7	30.9 29.6	30.3	89.8 82.1	86.0	6.0 5.6	5.8	5.8	3.7 3.3	3.5	3.4	6 7	6.5	5.2
				Middle	3.5	27.3 26.2	26.8	8.6 8.6	8.6	29.5 30.6	30.1	81.9 86.4	84.2	5.5 5.9	5.7		3.4 3.8	3.6		4 4	4.0	
				Bottom	6	26.3 26.7	26.5	8.6 8.6	8.6	28.7 29.8	29.3	86.7 85.2	86.0	6.0 5.8	5.9	5.9	2.9 3.2	3.1		5 5	5.0	
15-May-15	Fine	Moderate	11:44	Surface	1	25.3 25.4	25.4	8.1 8.1	8.1	26.4 26.1	26.3	84.2 86.1	85.2	6.0 6.1	6.1	6.1	3.2 3.6	3.4	4.2	3 3	3.0	4.3
				Middle	3.5	25.3 25.3	25.3	8.1 8.2	8.2	26.7 26.8	26.8	87.6 84.5	86.1	6.2 6.0	6.1		4.1 4.6	4.4		4 4	4.0	
				Bottom	6	25.2 25.3	25.3	8.1 8.1	8.1	26.9 27.0	27.0	83.5 82.1	82.8	5.9 5.8	5.9	5.9	4.7 4.9	4.8		6 6	6.0	
18-May-15	Fine	Moderate	13:54	Surface	1	26.3 26.1	26.2	7.9 7.9	7.9	29.2 29.2	29.2	86.8 85.5	86.2	5.9 5.9	5.9	5.7	1.9 1.7	1.8	2.6	8 8	8.0	5.7
				Middle	2.5	26.2 26.0	26.1	7.9 7.9	7.9	29.4 29.3	29.4	79.3 79.4	79.4	5.4 5.5	5.5		2.4 2.5	2.5		4 4	4.0	
				Bottom	4	26.2 25.9	26.1	7.9 7.9	7.9	29.8 30.0	29.9	76.2 76.7	76.5	5.2 5.3	5.3	5.3	3.4 3.5	3.5		5 5	5.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	15:19	Surface	1	24.4 24.0	24.2	8.0 8.0	8.0	29.7 29.9	29.8	91.4 87.8	89.6	6.5 6.2	6.4	6.2	4.4 4.0	4.2	4.2	7 7	7.0	5.3
				Middle	3.5	24.0 24.1	24.1	8.0 8.0	8.0	31.6 32.7	32.2	86.2 84.9	85.6	6.1 5.9	6.0		4.2 4.4	4.3		4 4	4.0	
				Bottom	6	23.9 24.3	24.1	8.0 8.0	8.0	32.8 31.1	32.0	81.1 76.4	78.8	5.7 5.4	5.6	5.6	4.3 4.1	4.2		5 5	5.0	
22-May-15	Cloudy	Moderate	16:45	Surface	1	24.6 24.6	24.6	8.1 8.1	8.1	31.4 31.3	31.4	76.0 75.8	75.9	5.3 5.3	5.3	5.3	2.0 1.9	2.0	2.9	3 4	3.5	3.7
				Middle	3.5	24.6 24.6	24.6	8.1 8.1	8.1	31.5 31.4	31.5	74.6 74.9	74.8	5.2 5.2	5.2		3.1 3.2	3.2		4 4	4.0	
				Bottom	6	24.6 24.6	24.6	8.1 8.1	8.1	31.5 31.6	31.6	74.5 74.8	74.7	5.2 5.2	5.2	5.2	3.5 3.4	3.5		3 4	3.5	
26-May-15	Rainy	Calm	18:25	Surface	1	26.2 26.2	26.2	8.0 8.0	8.0	27.7 27.7	27.7	73.2 73.4	73.3	5.1 5.1	5.1	5.0	3.9 3.5	3.7	3.9	7 7	7.0	4.7
				Middle	3.5	26.2 26.2	26.2	8.0 8.0	8.0	28.3 28.3	28.3	70.9 71.1	71.0	4.9 4.9	4.9		3.8 3.5	3.7		3 3	3.0	
				Bottom	6	26.1 26.1	26.1	8.1 8.1	8.1	28.7 28.7	28.7	69.1 69.2	69.2	4.8 4.8	4.8	4.8	4.1 4.2	4.2		4 4	4.0	
28-May-15	Rainy	Calm	10:53	Surface	1	26.5 26.4	26.5	7.8 7.8	7.8	28.2 28.1	28.2	79.5 76.3	77.9	5.5 5.2	5.4	5.3	1.6 1.8	1.7	2.7	7 7	7.0	5.8
				Middle	3.5	26.1 26.0	26.1	7.6 7.6	7.6	29.6 29.6	29.6	72.3 73.6	73.0	5.0 5.1	5.1		1.7 1.9	1.8		5 5	5.0	
				Bottom	6	25.9 25.9	25.9	7.6 7.6	7.6	31.1 31.2	31.2	55.3 57.8	56.6	3.8 3.9	3.9	3.9	4.5 4.6	4.6		6 5	5.5	
30-May-15	Fine	Moderate	12:01	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	26.3 26.3	26.3	112.0 112.0	112.0	7.6 7.6	7.6	7.6	3.4 3.5	3.5	4.5	5 4	4.5	3.8
				Middle	3.5	27.6 27.6	27.6	8.3 8.3	8.3	26.4 26.4	26.4	110.7 110.4	110.6	7.5 7.5	7.5		4.3 4.3	4.3		4 4	4.0	
				Bottom	6	27.3 27.3	27.3	8.2 8.2	8.2	26.7 26.7	26.7	94.8 93.7	94.3	6.5 6.4	6.5	6.5	5.8 5.7	5.8		3 3	3.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-May-15	Fine	Moderate	16:23	Surface	1	24.8 24.8	24.8	7.9 7.9	7.9	32.1 32.1	32.1	54.4 54.9	54.7	3.8 3.8	3.8	3.8	0.4 0.4	0.4	0.6	4 4	4.0	5.2
				Middle	3.5	24.7 24.7	24.7	7.9 7.9	7.9	32.2 32.2	32.2	54.4 53.8	54.1	3.8 3.7	3.8		0.7 0.8	0.8		5 5	5.0	
				Bottom	6	24.6 24.6	24.6	7.9 7.9	7.9	32.2 32.2	32.2	54.9 54.3	54.6	3.8 3.8	3.8	3.8	0.5 0.5	0.5		7 6	6.5	
4-May-15	Fine	Moderate	20:41	Surface	1	26.0 25.9	26.0	8.1 8.1	8.1	27.7 27.8	27.8	88.2 87.2	87.7	6.1 6.1	6.1	6.0	3.7 3.5	3.6	3.6	3 3	3.0	4.7
				Middle	4	25.7 25.6	25.7	8.1 8.3	8.2	28.2 28.2	28.2	82.9 84.1	83.5	5.8 5.9	5.9		3.3 3.7	3.5		6 6	6.0	
				Bottom	7	25.6 25.6	25.6	8.3 8.3	8.3	28.2 28.2	28.2	84.3 84.3	84.3	5.9 5.9	5.9	5.9	3.6 3.8	3.7		5 5	5.0	
6-May-15	Fine	Moderate	08:45	Surface	1	25.3 25.3	25.3	8.0 8.0	8.0	26.6 26.6	26.6	95.7 95.5	95.6	6.8 6.8	6.8	6.9	1.7 2.0	1.9	2.0	8 7	7.5	5.8
				Middle	3.5	25.3 25.3	25.3	8.1 8.2	8.2	26.7 26.7	26.7	96.6 97.0	96.8	6.8 6.9	6.9		1.3 1.2	1.3		7 7	7.0	
				Bottom	6	25.2 25.2	25.2	8.0 8.2	8.1	26.9 27.0	27.0	97.6 97.8	97.7	6.9 6.9	6.9	6.9	2.9 2.4	2.7		3 3	3.0	
8-May-15	Fine	Rough	10:00	Surface	1	24.5 25.2	24.9	8.1 8.1	8.1	30.4 29.5	30.0	77.0 77.7	77.4	5.4 5.4	5.4	5.5	3.3 2.9	3.1	4.0	5 5	5.0	5.3
				Middle	3.5	25.3 25.4	25.4	8.1 8.1	8.1	30.5 30.4	30.5	78.6 79.2	78.9	5.4 5.5	5.5		4.5 4.0	4.3		6 6	6.0	
				Bottom	6	25.2 25.3	25.3	8.1 8.0	8.1	30.4 30.1	30.3	78.5 78.4	78.5	5.4 5.4	5.4	5.4	5.0 4.3	4.7		7 3	5.0	
11-May-15	Fine	Moderate	12:28	Surface	1	25.9 25.7	25.8	6.7 6.7	6.7	28.2 28.2	28.2	96.6 97.2	96.9	6.7 6.8	6.8	6.4	2.8 2.8	2.8	2.8	4 4	4.0	4.0
				Middle	3.5	25.7 25.6	25.7	6.7 6.7	6.7	28.3 28.2	28.3	84.6 82.5	83.6	5.9 5.8	5.9		2.8 2.8	2.8		5 5	5.0	
				Bottom	6	25.4 25.3	25.4	6.6 6.6	6.6	29.3 29.4	29.4	76.7 77.1	76.9	5.3 5.4	5.4	5.4	2.9 2.8	2.9		3 3	3.0	
13-May-15	Sunny	Moderate	15:47	Surface	1	27.3 26.1	26.7	8.8 8.7	8.8	29.1 28.5	28.8	86.7 81.6	84.2	5.8 5.6	5.7	5.8	4.4 3.9	4.2	3.7	3 3	3.0	5.7
				Middle	3.5	27.2 26.8	27.0	8.9 8.7	8.8	29.2 30.3	29.8	88.3 84.9	86.6	6.0 5.7	5.9		3.0 2.7	2.9		7 7	7.0	
				Bottom	6	26.6 26.3	26.5	8.9 8.9	8.9	29.8 30.1	30.0	87.1 86.5	86.8	5.9 5.9	5.9	5.9	4.0 4.2	4.1		7 7	7.0	
15-May-15	Fine	Moderate	17:46	Surface	1	25.3 25.2	25.3	8.1 8.2	8.2	28.1 28.2	28.2	83.3 82.7	83.0	5.8 5.8	5.8	5.7	1.4 1.2	1.3	3.9	4 4	4.0	3.7
				Middle	3.5	25.1 25.1	25.1	8.1 8.1	8.1	28.5 28.6	28.6	79.9 78.7	79.3	5.6 5.5	5.6		4.2 3.8	4.0		3 3	3.0	
				Bottom	6	25.3 25.2	25.3	8.1 8.1	8.1	28.6 28.6	28.6	77.4 74.9	76.2	5.4 5.2	5.3	5.3	6.3 6.3	6.3		4 4	4.0	
18-May-15	Fine	Moderate	20:32	Surface	1	25.9 26.2	26.1	8.1 8.2	8.2	32.2 32.0	32.1	87.4 90.4	88.9	5.9 6.1	6.0	5.9	1.2 1.1	1.2	1.8	4 4	4.0	4.3
				Middle	3.5	26.1 26.1	26.1	8.1 8.2	8.2	32.2 33.3	32.8	84.1 87.0	85.6	5.7 5.8	5.8		1.9 1.8	1.9		5 5	5.0	
				Bottom	6	26.1 26.2	26.2	8.2 8.2	8.2	32.0 32.8	32.4	80.6 80.5	80.6	5.5 5.4	5.5	5.5	2.4 2.4	2.4		4 4	4.0	

Remarks: *DA: Depth-Averaged

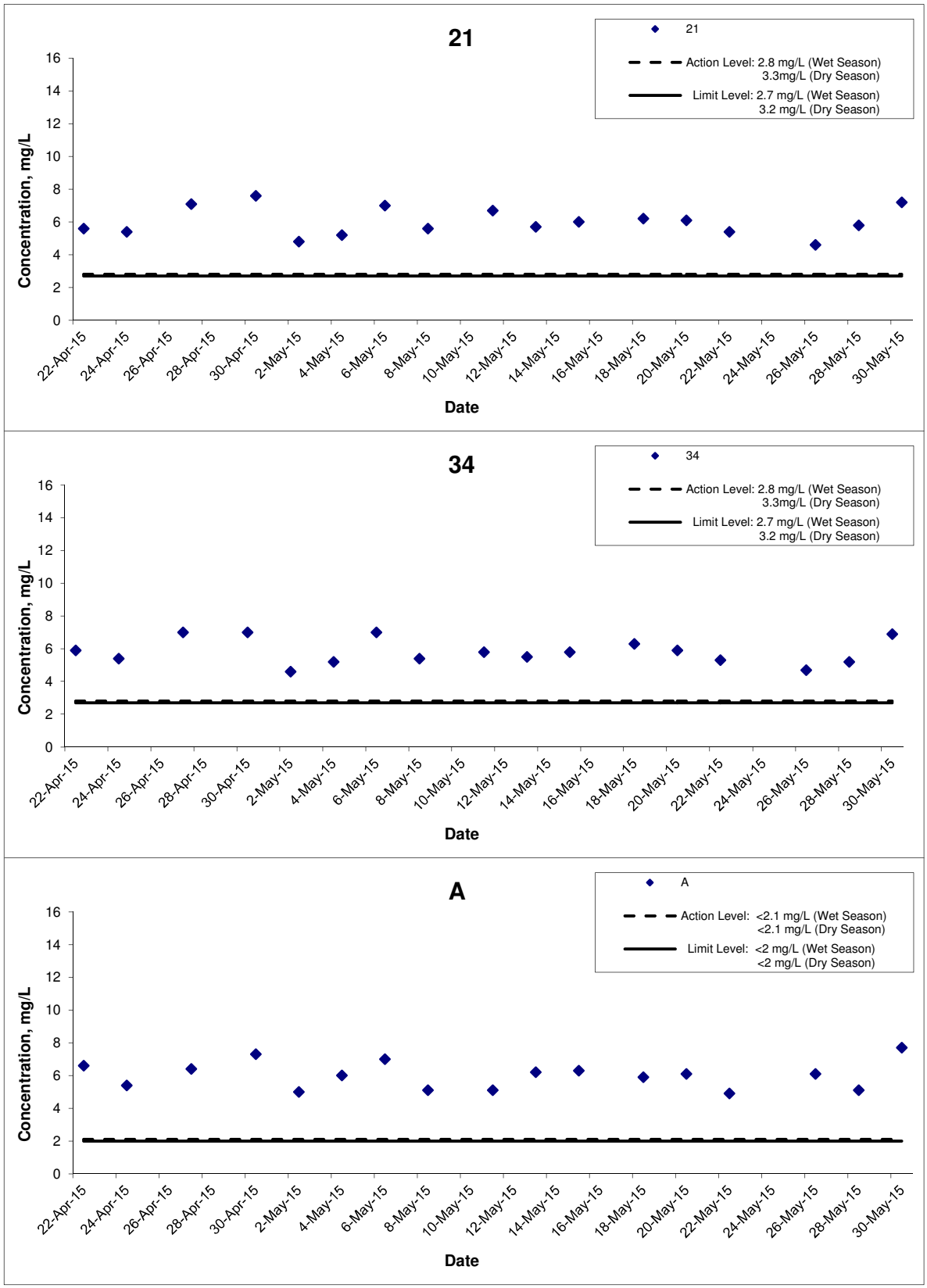
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at WSD9 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
20-May-15	Rainy	Moderate	08:36	Surface	1	24.0 24.2	24.1	7.9 7.9	7.9	29.1 29.6	29.4	90.6 88.6	89.6	6.5 6.3	6.4	6.2	4.4 4.1	4.3	4.4	4 4	4.0	5.7
				Middle	3.5	24.0 24.1	24.1	8.0 7.9	8.0	33.2 32.3	32.8	86.1 84.3	85.2	6.0 5.9	6.0		4.2 4.4	4.3		6 6	6.0	
				Bottom	6	23.7 24.4	24.1	8.0 8.0	8.0	32.1 30.8	31.5	80.6 75.2	77.9	5.7 5.3	5.5	5.5	4.3 4.6	4.5		7 7	7.0	
22-May-15	Cloudy	Moderate	10:09	Surface	1	24.5 24.5	24.5	8.1 8.1	8.1	30.7 31.2	31.0	80.4 80.5	80.5	5.6 5.6	5.6	5.6	1.5 1.7	1.6	2.5	5 6	5.5	5.2
				Middle	3.5	24.5 24.5	24.5	8.1 8.1	8.1	31.5 31.6	31.6	80.4 80.2	80.3	5.6 5.6	5.6		2.0 1.9	2.0		5 6	5.5	
				Bottom	6	24.5 24.5	24.5	8.1 8.1	8.1	31.8 31.9	31.9	80.4 80.4	80.4	5.6 5.6	5.6	5.6	4.1 3.8	4.0		4 5	4.5	
26-May-15	Rainy	Calm	13:09	Surface	1	26.1 26.1	26.1	8.1 8.1	8.1	26.7 26.7	26.7	72.1 72.2	72.2	5.0 5.0	5.0	4.9	2.9 2.7	2.8	3.7	5 5	5.0	4.7
				Middle	3.5	26.1 26.1	26.1	8.0 8.0	8.0	27.8 27.8	27.8	69.5 69.2	69.4	4.8 4.8	4.8		3.4 4.2	3.8		4 4	4.0	
				Bottom	6	26.1 26.1	26.1	8.1 8.0	8.1	27.9 28.3	28.1	71.4 71.4	71.4	4.9 4.9	4.9	4.9	4.5 4.4	4.5		5 5	5.0	
28-May-15	Rainy	Calm	16:25	Surface	1	27.1 27.2	27.2	7.7 7.7	7.7	27.8 27.8	27.8	68.9 63.8	66.4	4.7 4.3	4.5	4.5	1.2 1.4	1.3	2.4	6 6	6.0	5.3
				Middle	3.5	26.0 26.2	26.1	7.7 7.7	7.7	30.4 29.9	30.2	64.8 62.8	63.8	4.4 4.3	4.4		1.9 1.8	1.9		6 5	5.5	
				Bottom	6	25.5 25.5	25.5	7.8 7.8	7.8	32.0 31.9	32.0	56.5 55.3	55.9	3.9 3.8	3.9	3.9	4.2 3.8	4.0		4 5	4.5	
30-May-15	Fine	Moderate	18:29	Surface	1	27.7 27.7	27.7	8.3 8.3	8.3	26.3 26.3	26.3	111.8 111.8	111.8	7.6 7.6	7.6	7.6	2.8 2.7	2.8	4.3	4 4	4.0	5.2
				Middle	3.5	27.6 27.6	27.6	8.3 8.3	8.3	26.4 26.4	26.4	110.1 109.9	110.0	7.5 7.5	7.5		3.5 3.2	3.4		4 4	4.0	
				Bottom	6	27.3 27.3	27.3	8.2 8.2	8.2	26.7 26.7	26.7	93.0 92.7	92.9	6.4 6.3	6.4	6.4	6.8 6.7	6.8		8 7	7.5	

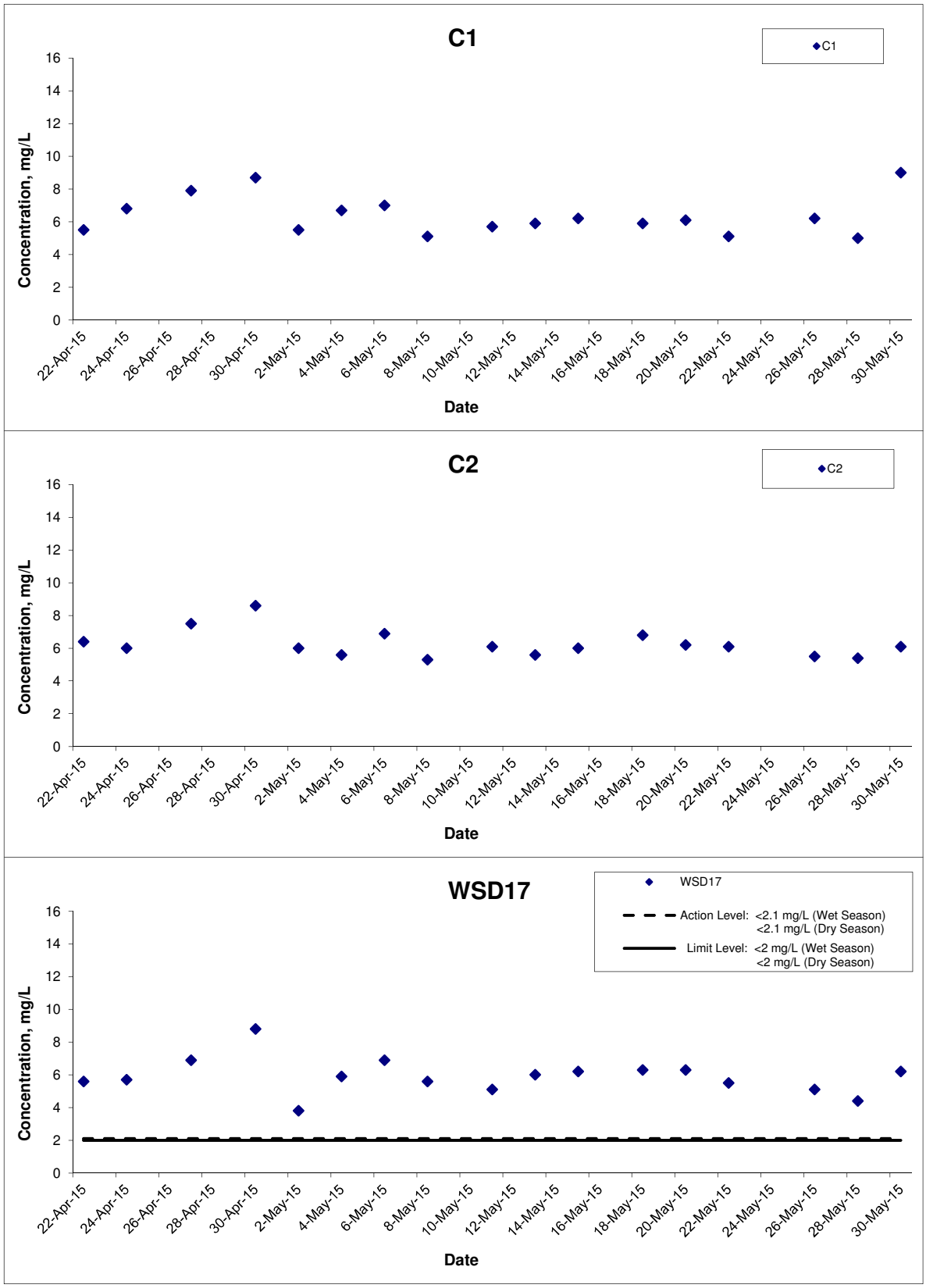
Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Dissolved Oxygen (Surface) at Mid-Ebb Tide



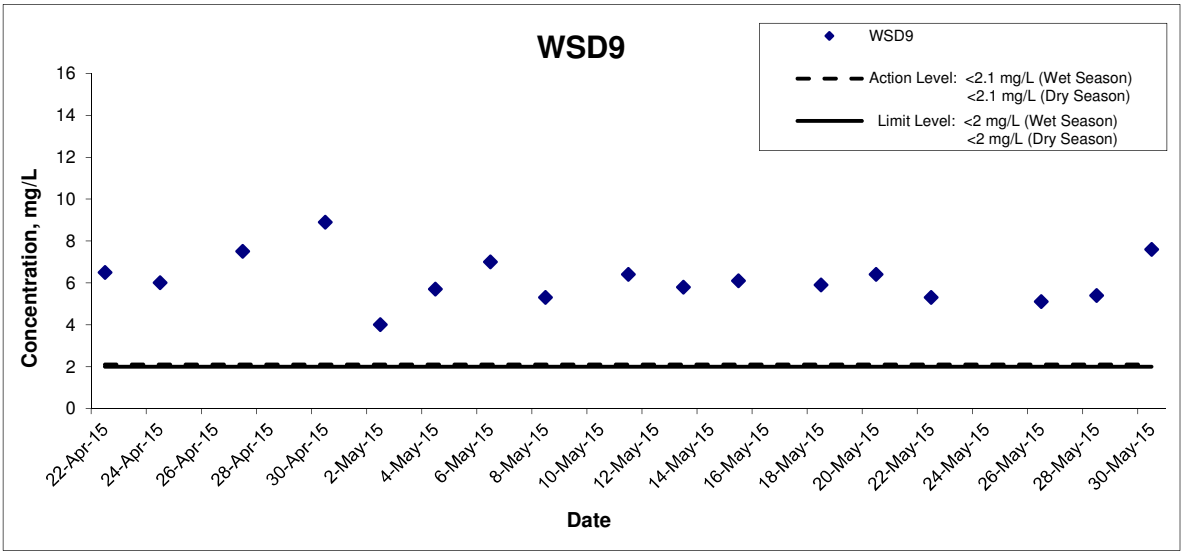
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Surface) at Mid-Ebb Tide



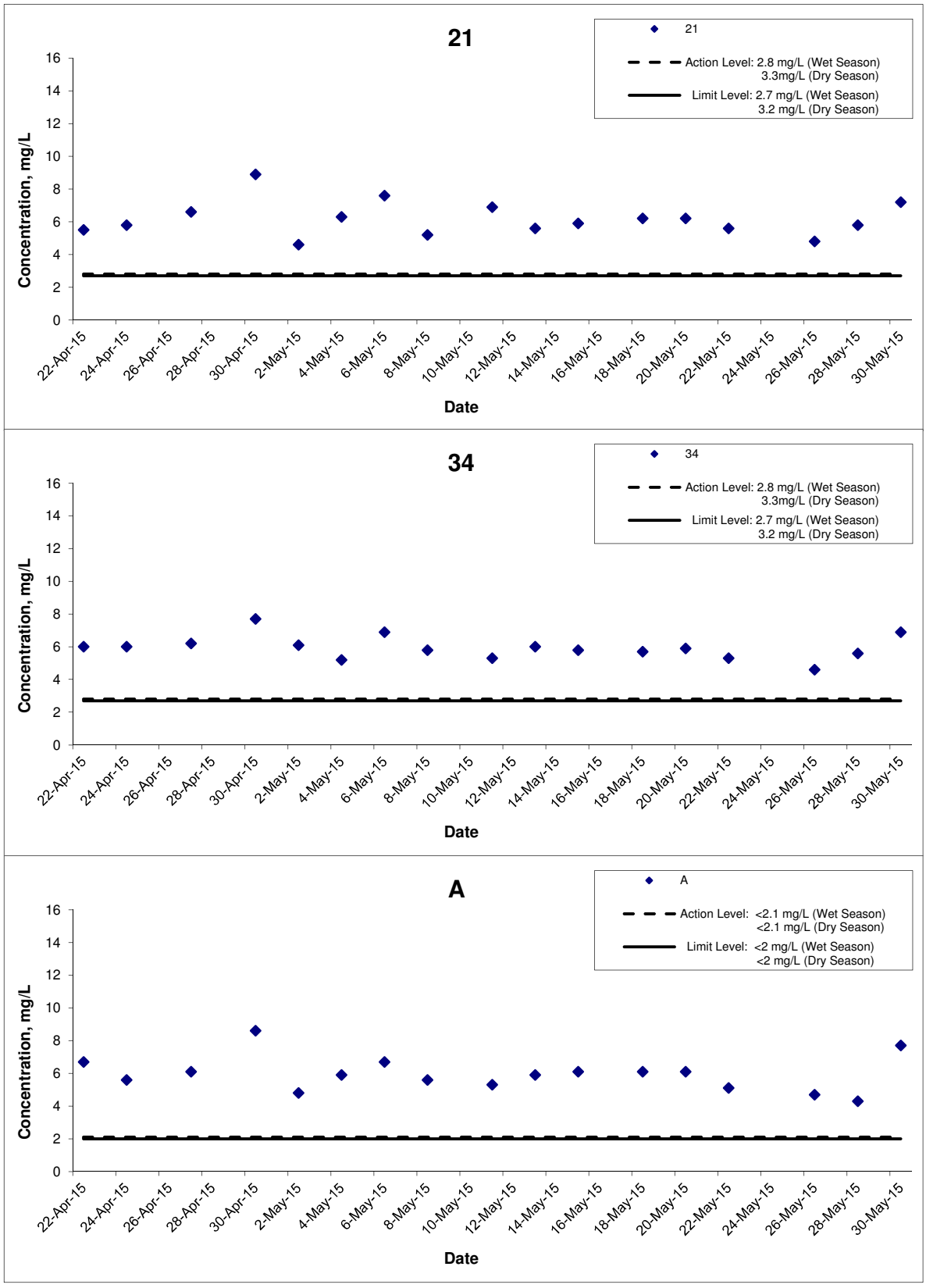
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No. MA14047
		Date	May 15	Appendix D

Dissolved Oxygen (Surface) at Mid-Ebb Tide



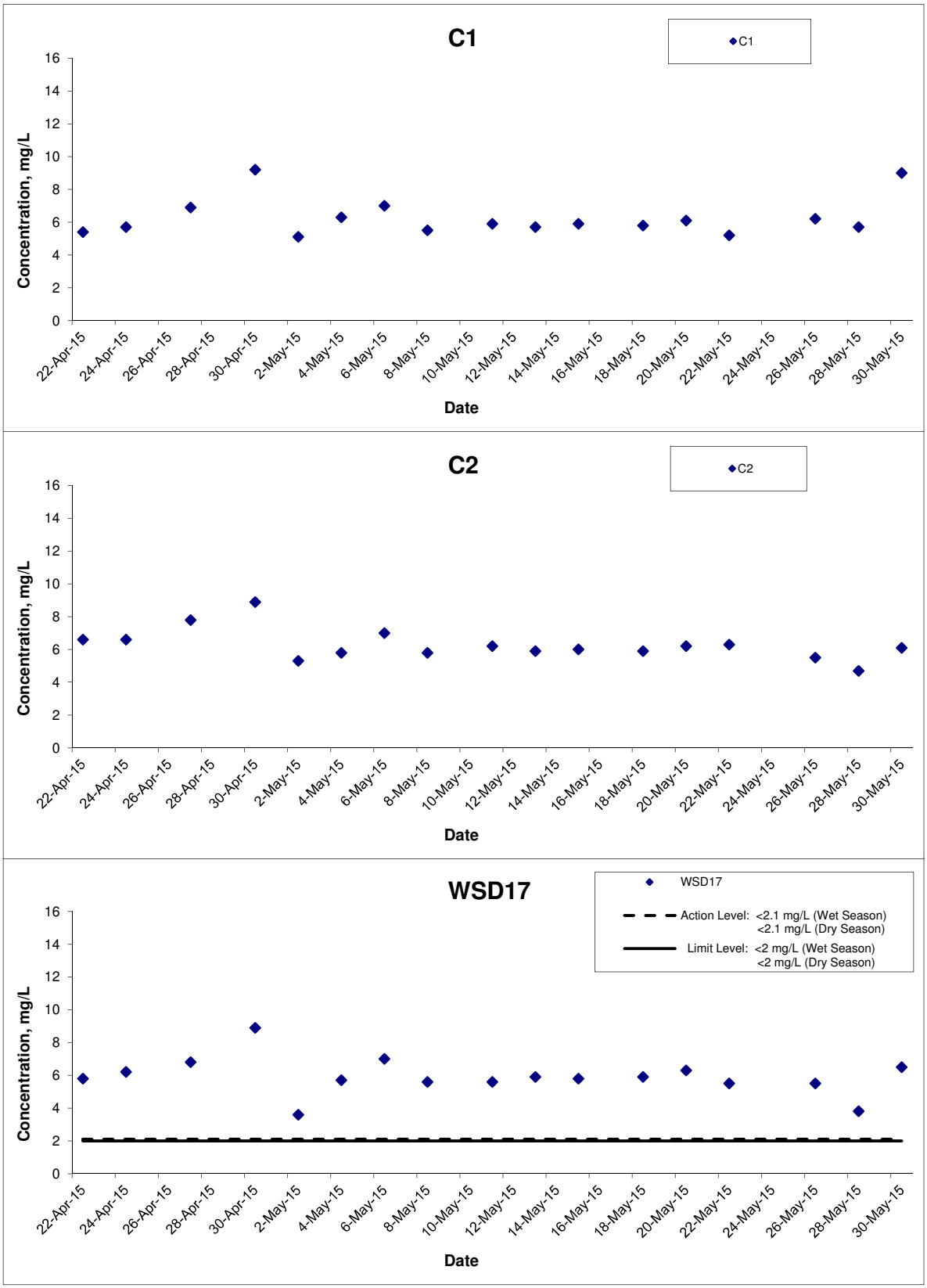
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Dissolved Oxygen (Surface) at Mid-Flood Tide



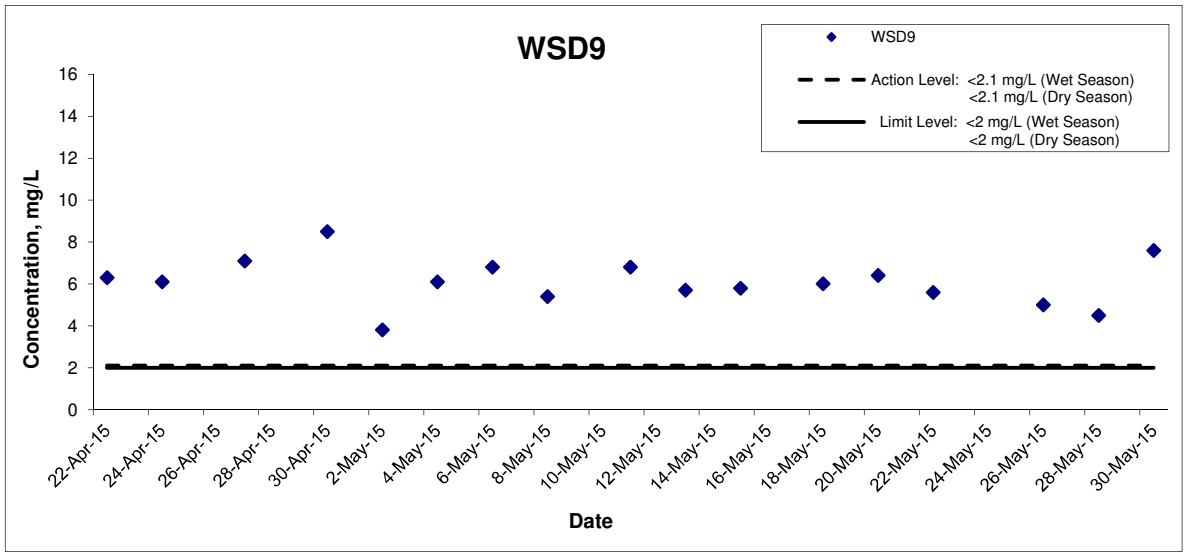
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Surface) at Mid-Flood Tide



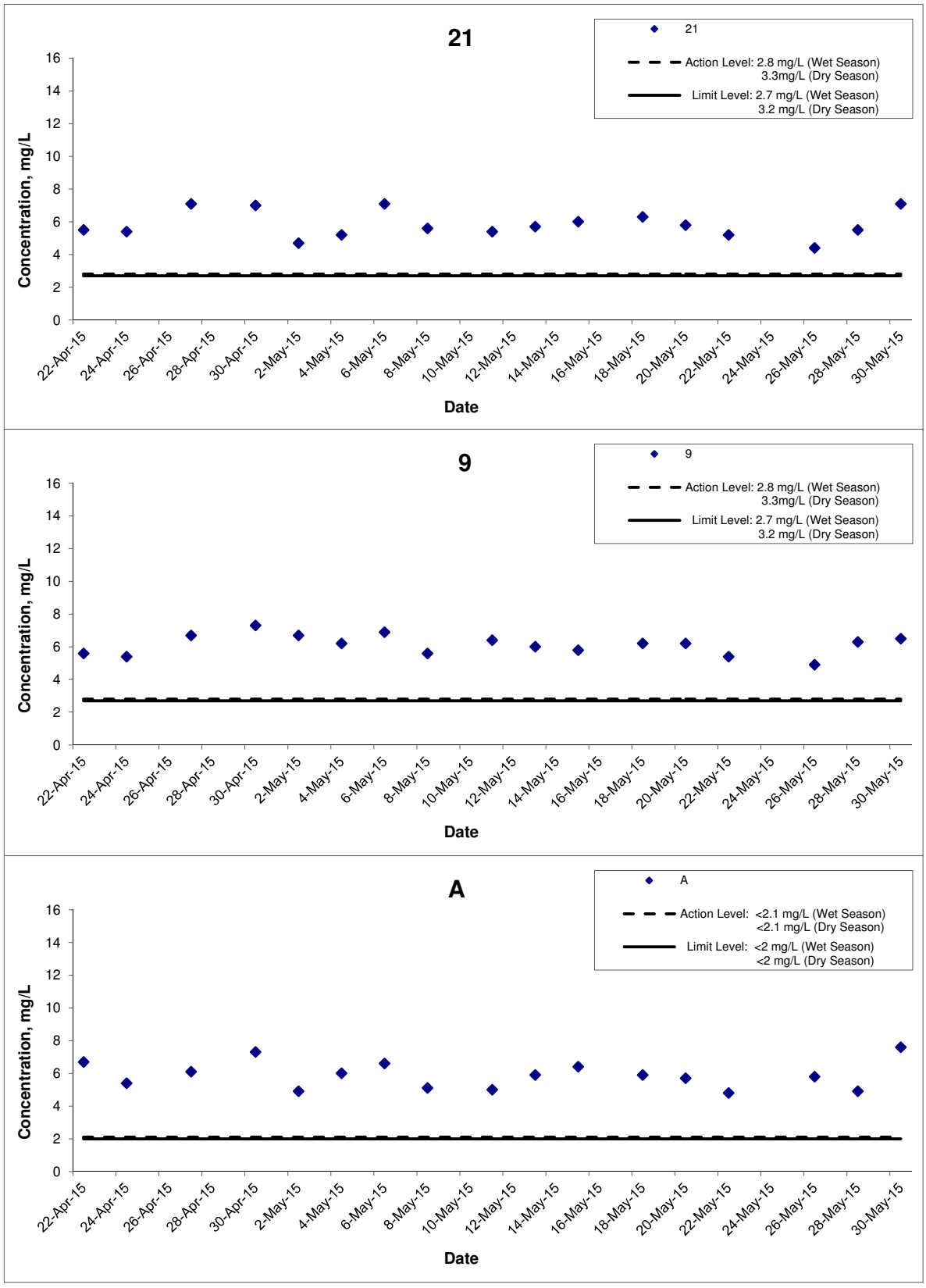
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Surface) at Mid-Flood Tide



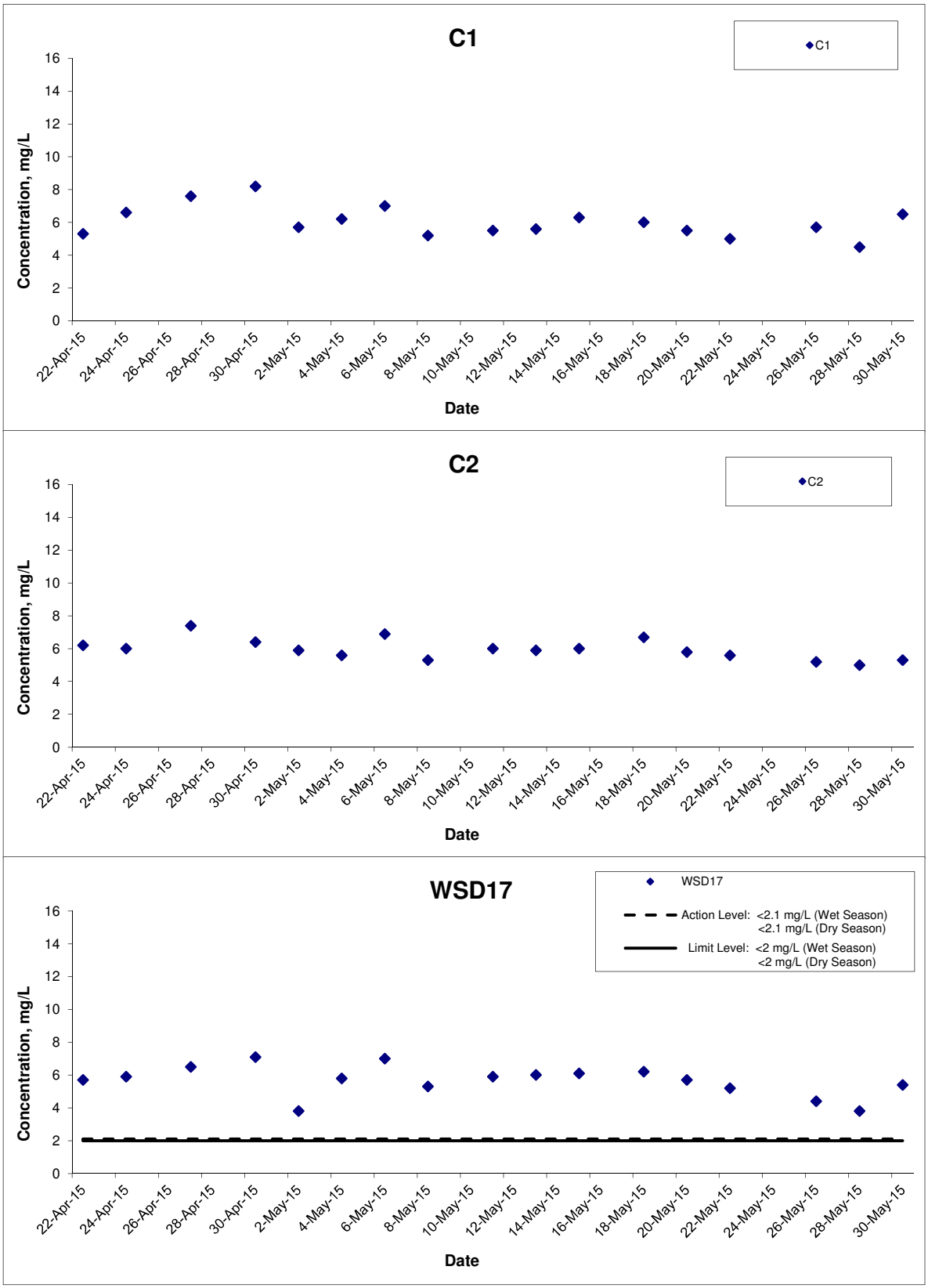
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Dissolved Oxygen (Middle) at Mid-Ebb Tide



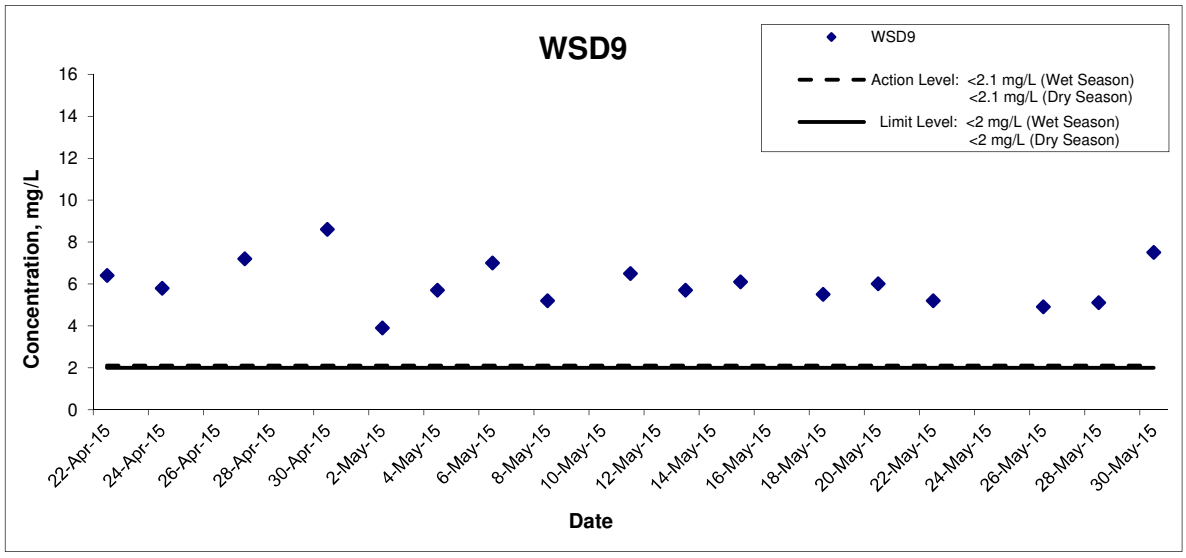
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Middle) at Mid-Ebb Tide



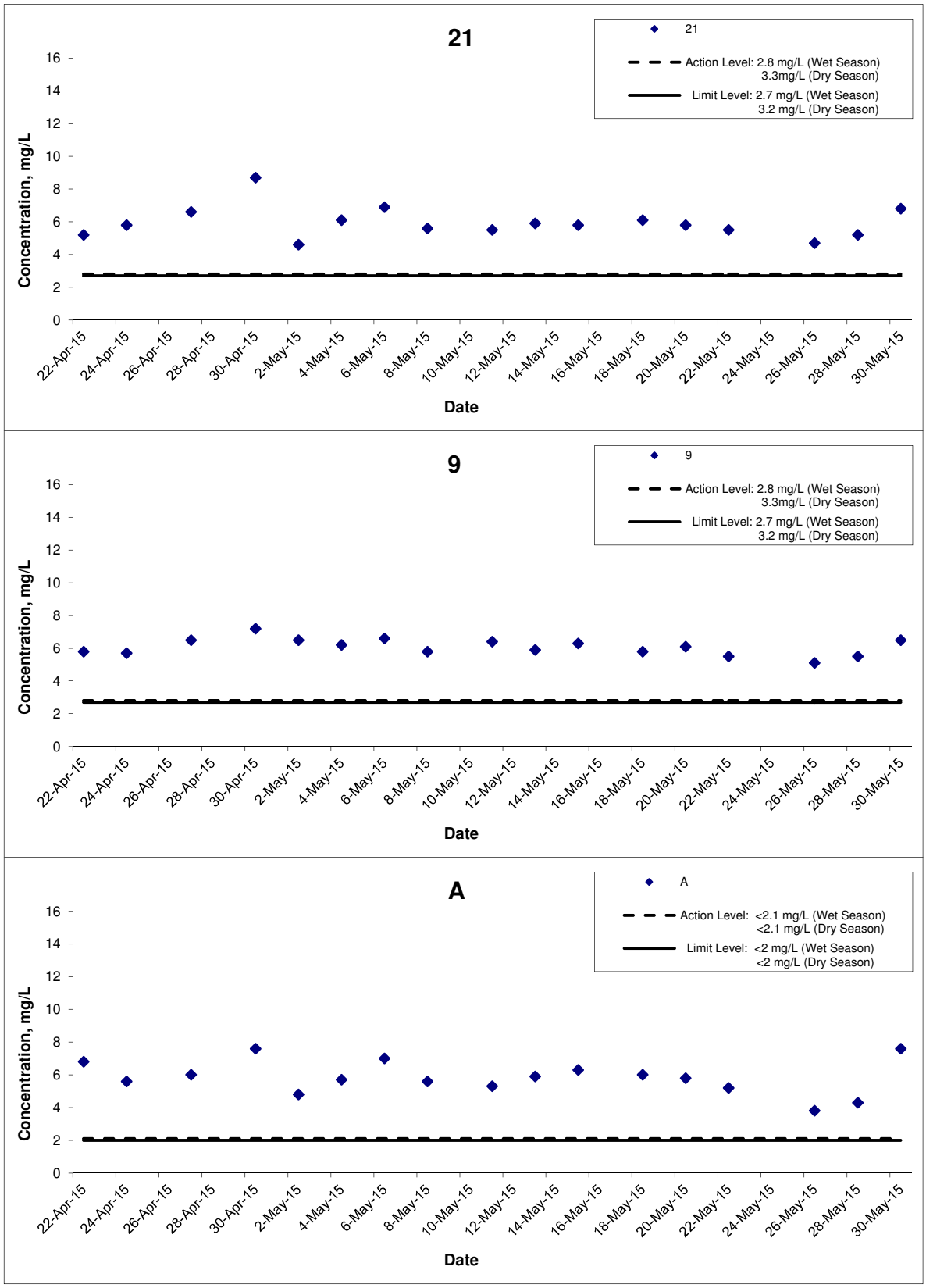
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Middle) at Mid-Ebb Tide



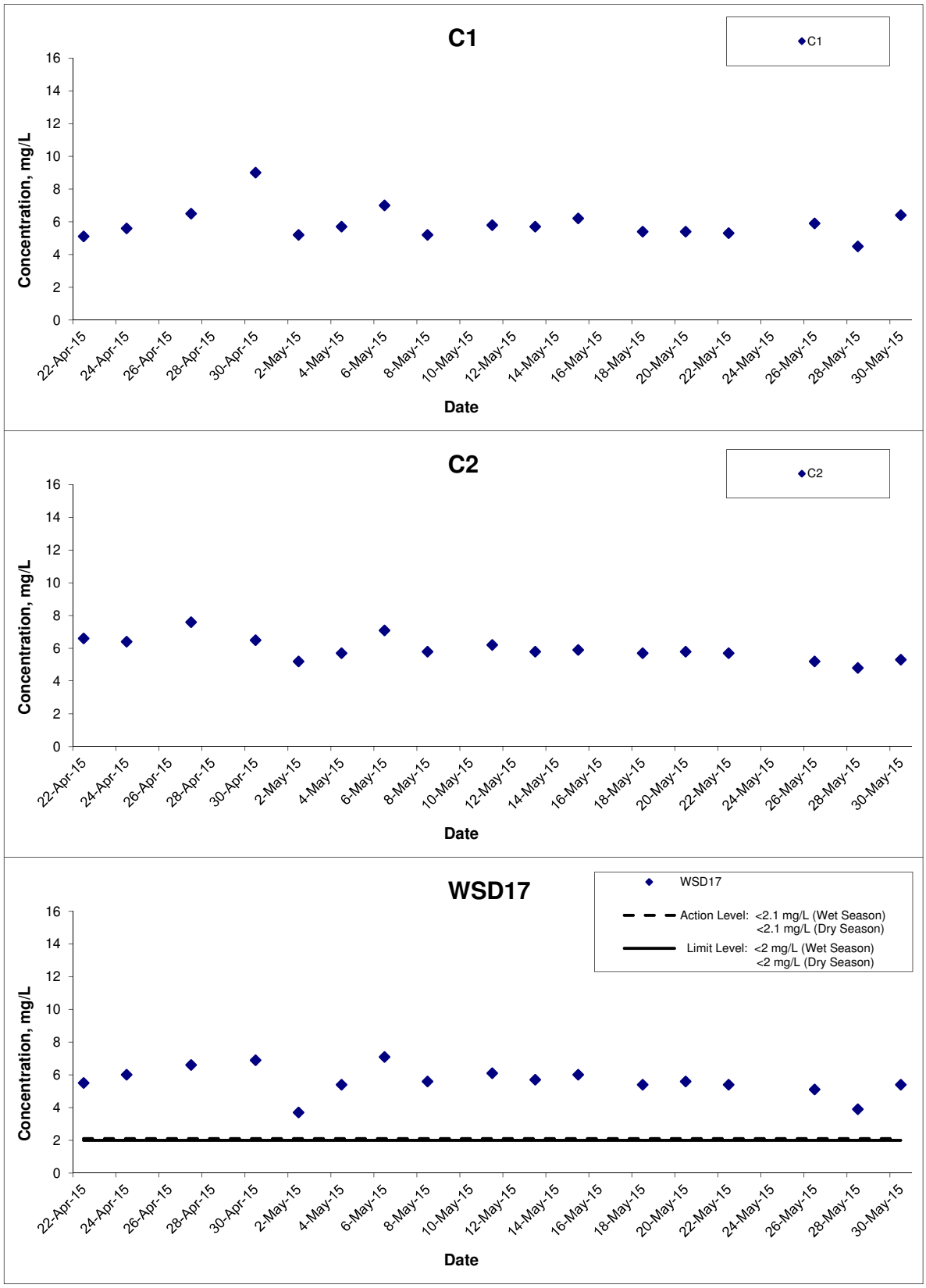
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Dissolved Oxygen (Middle) at Mid-Flood Tide



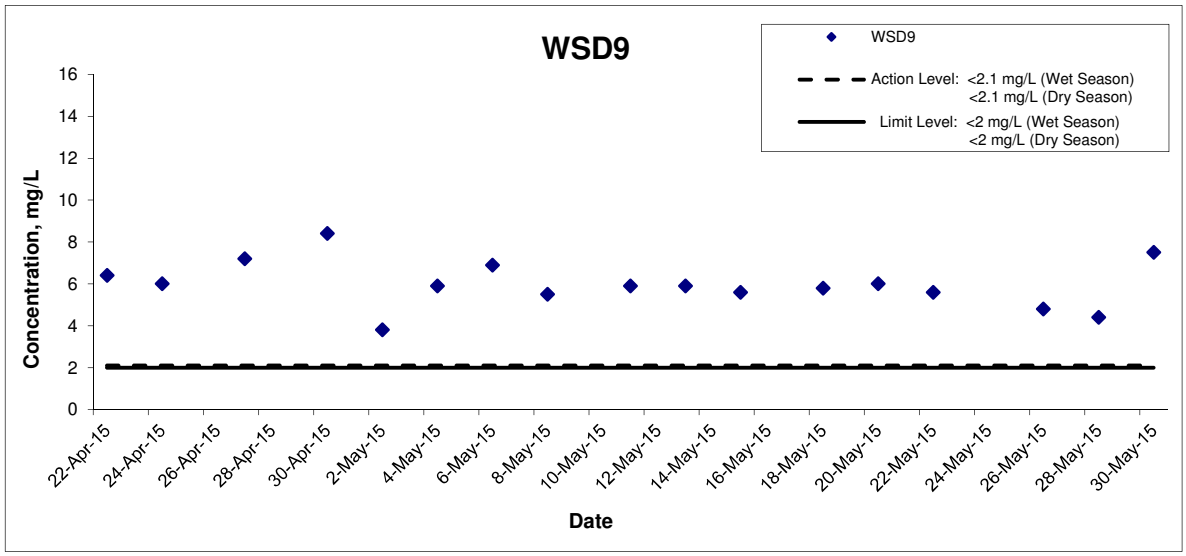
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Middle) at Mid-Flood Tide



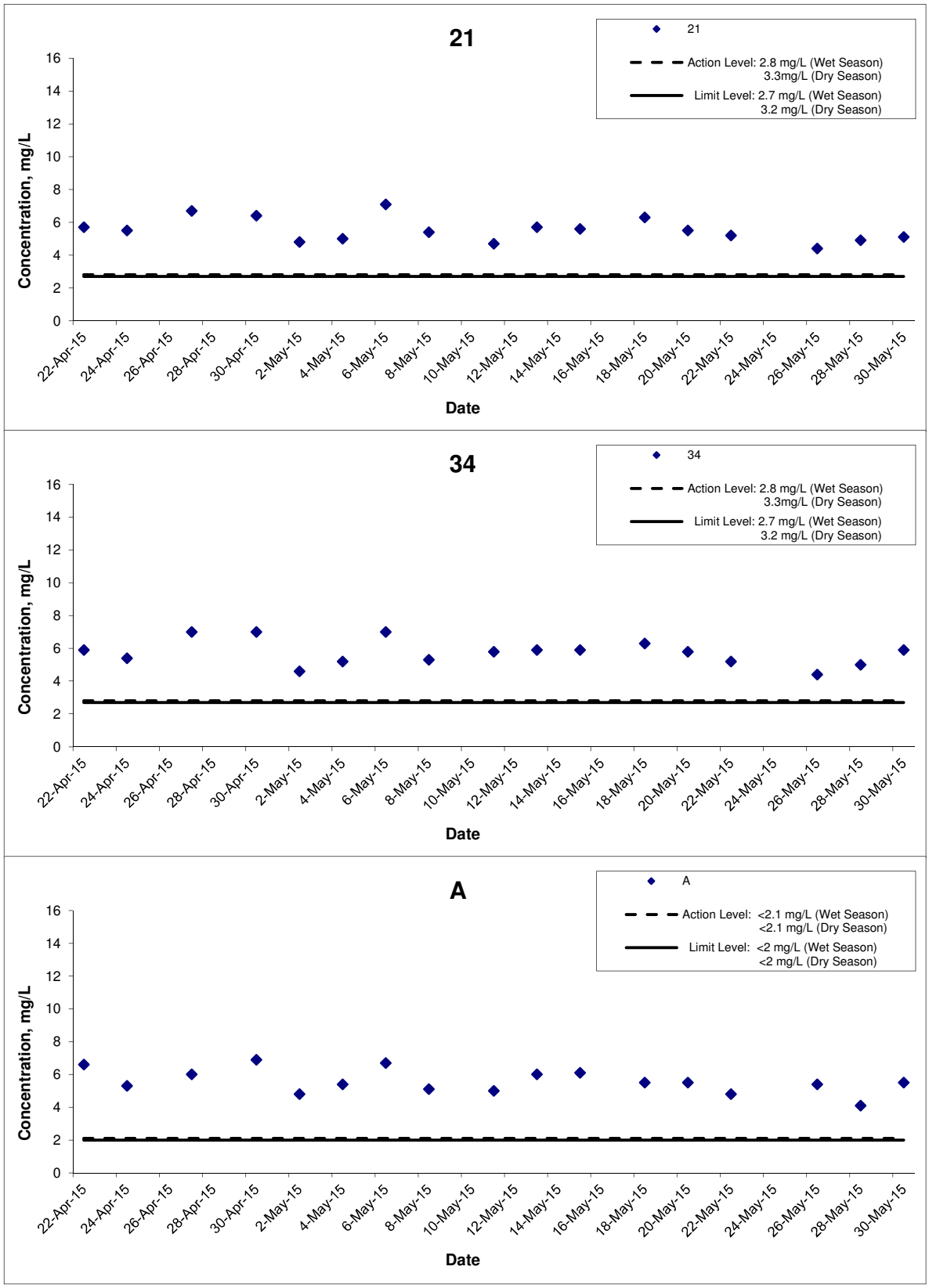
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Middle) at Mid-Flood Tide



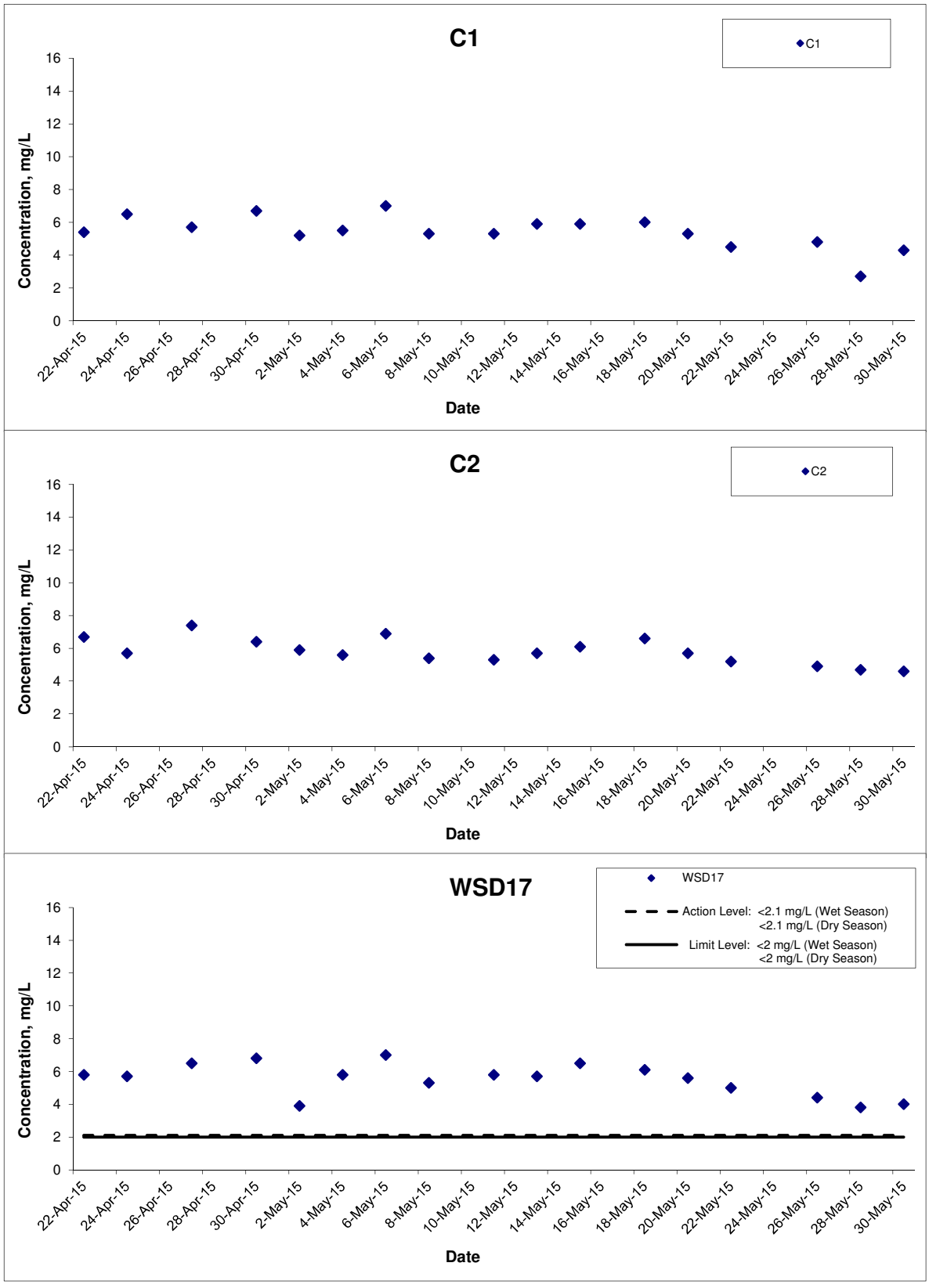
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



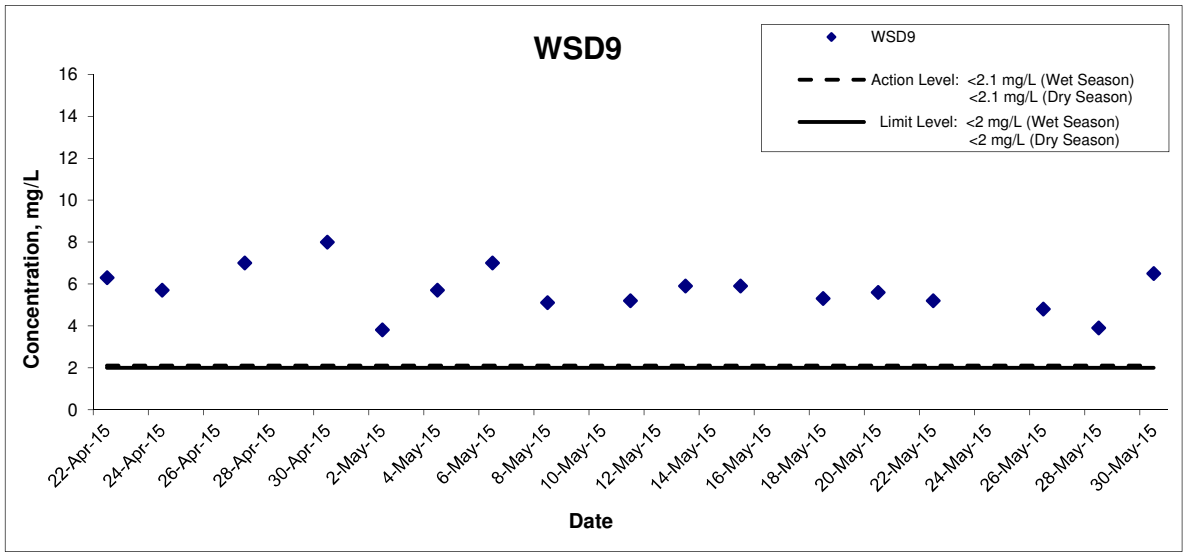
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



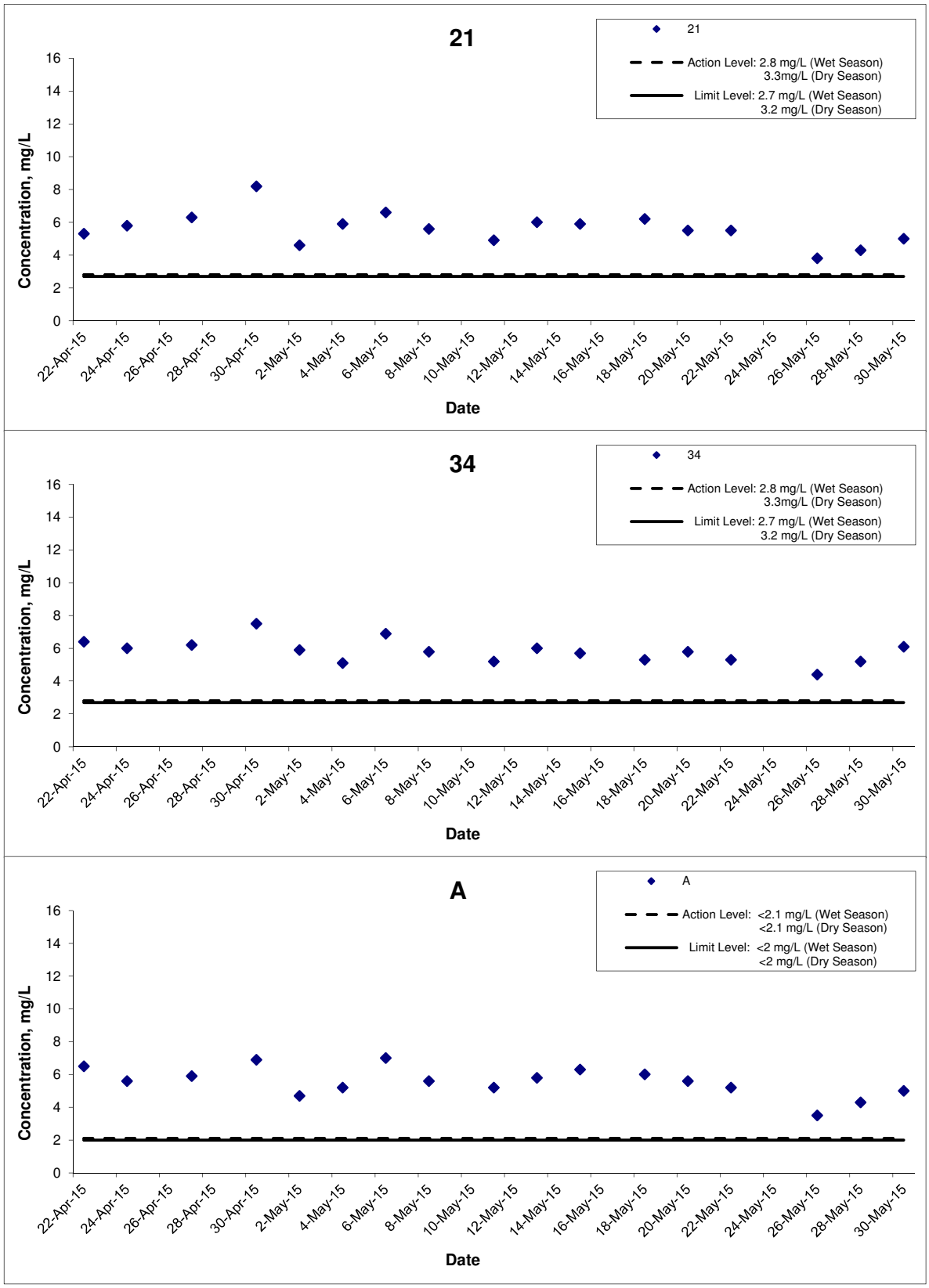
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



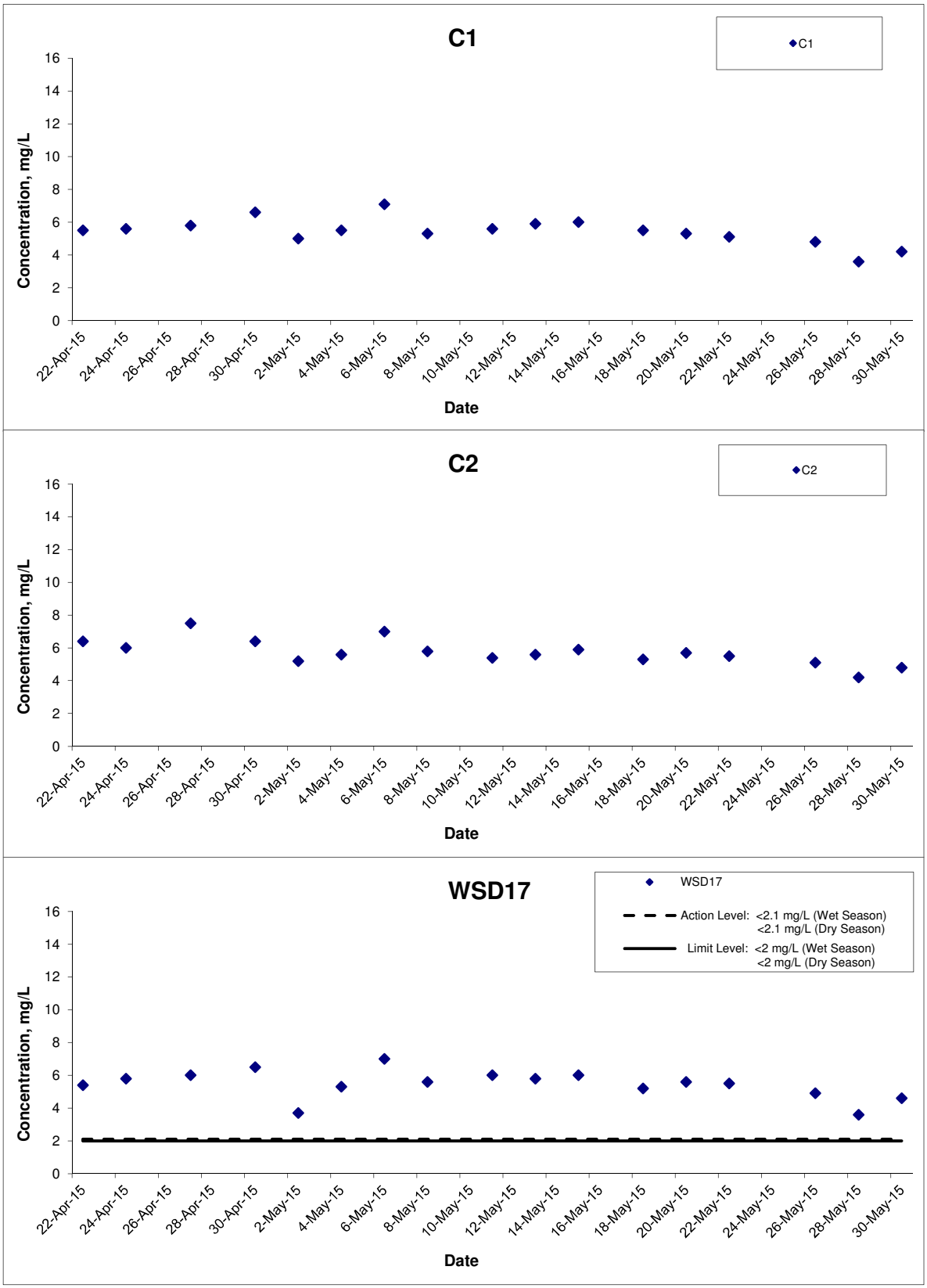
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



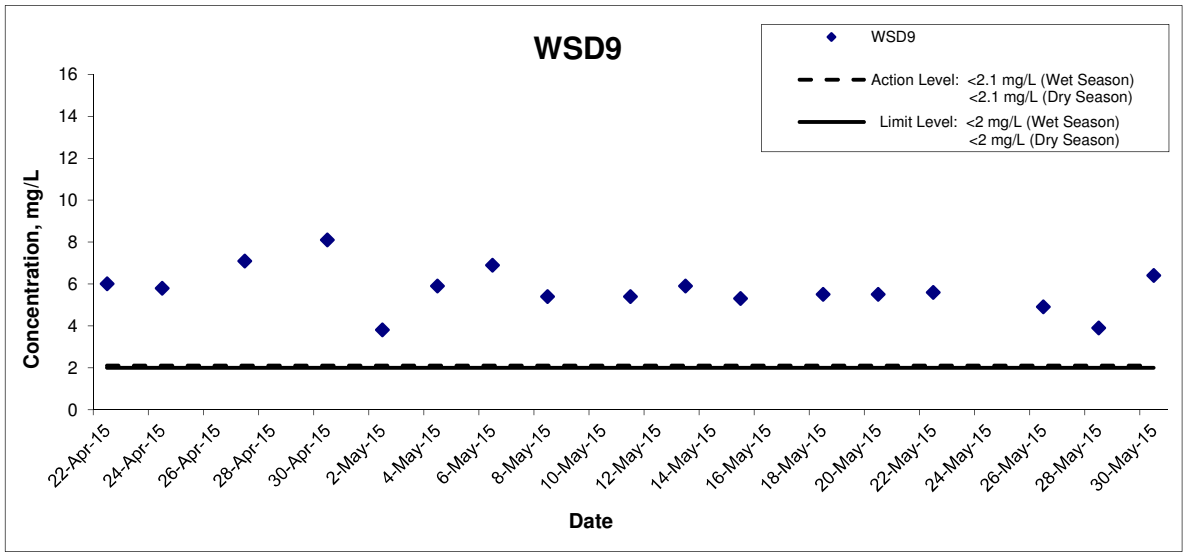
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



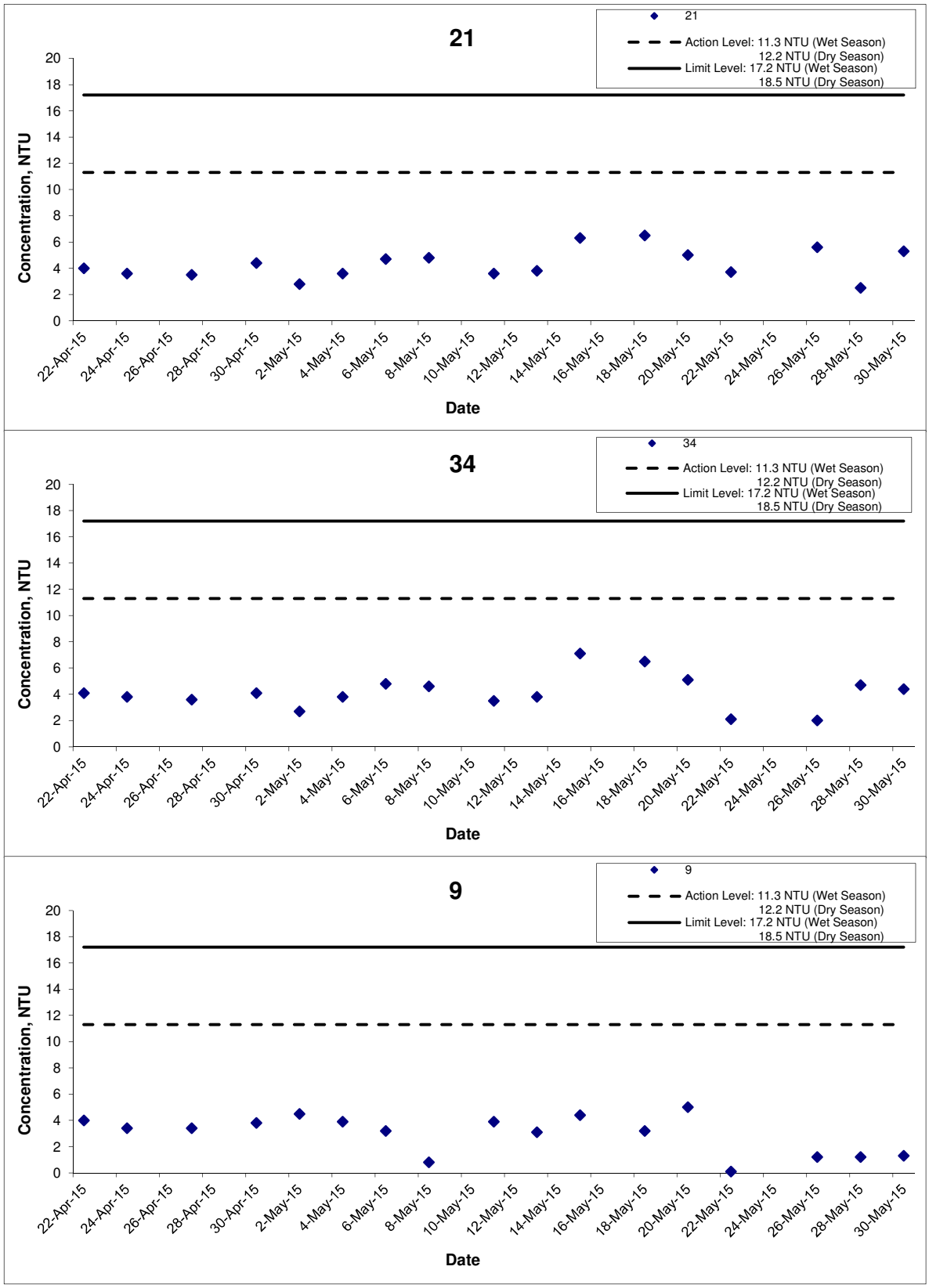
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



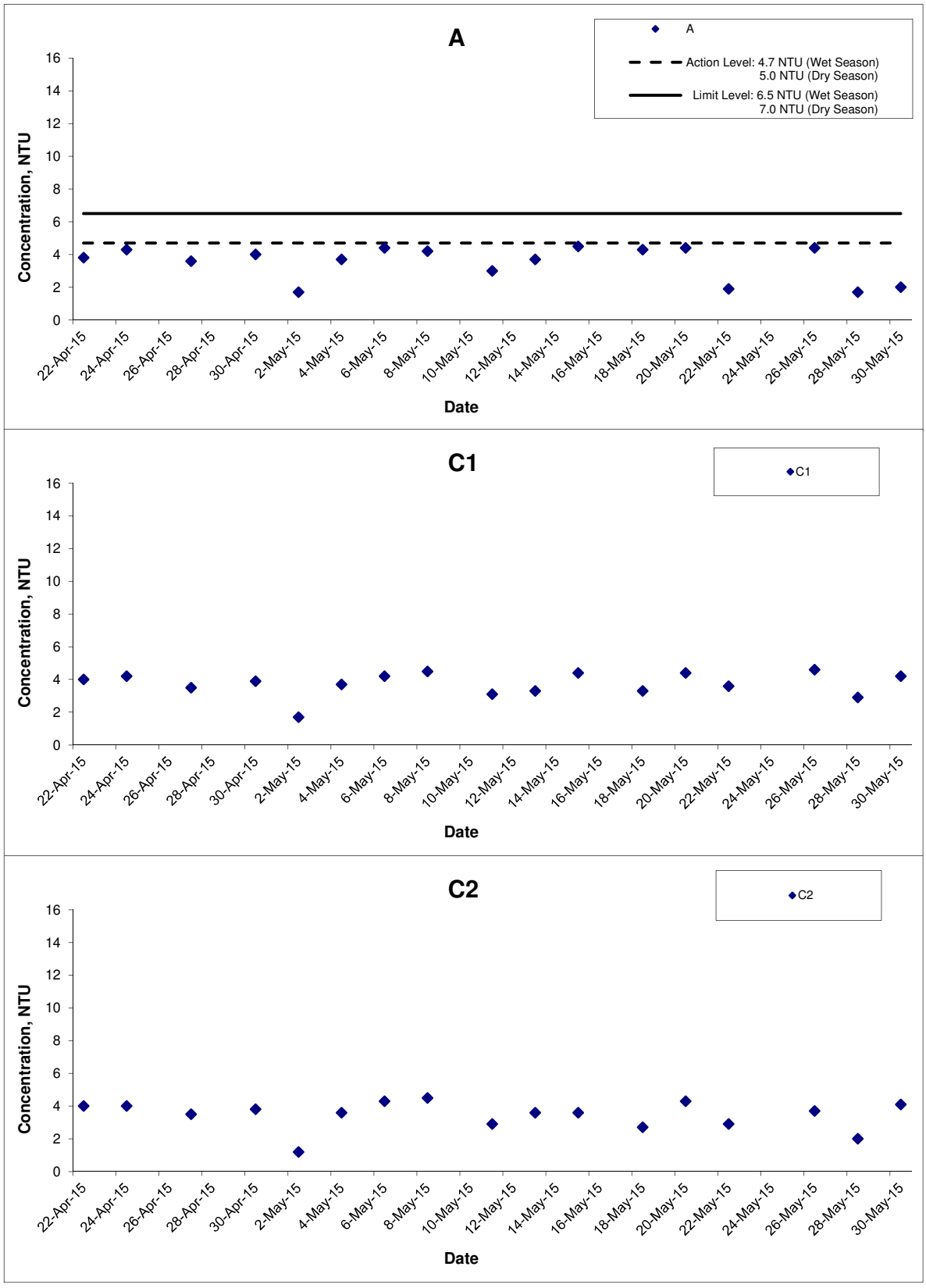
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Turbidity (Depth-averaged) at Mid-Ebb Tide



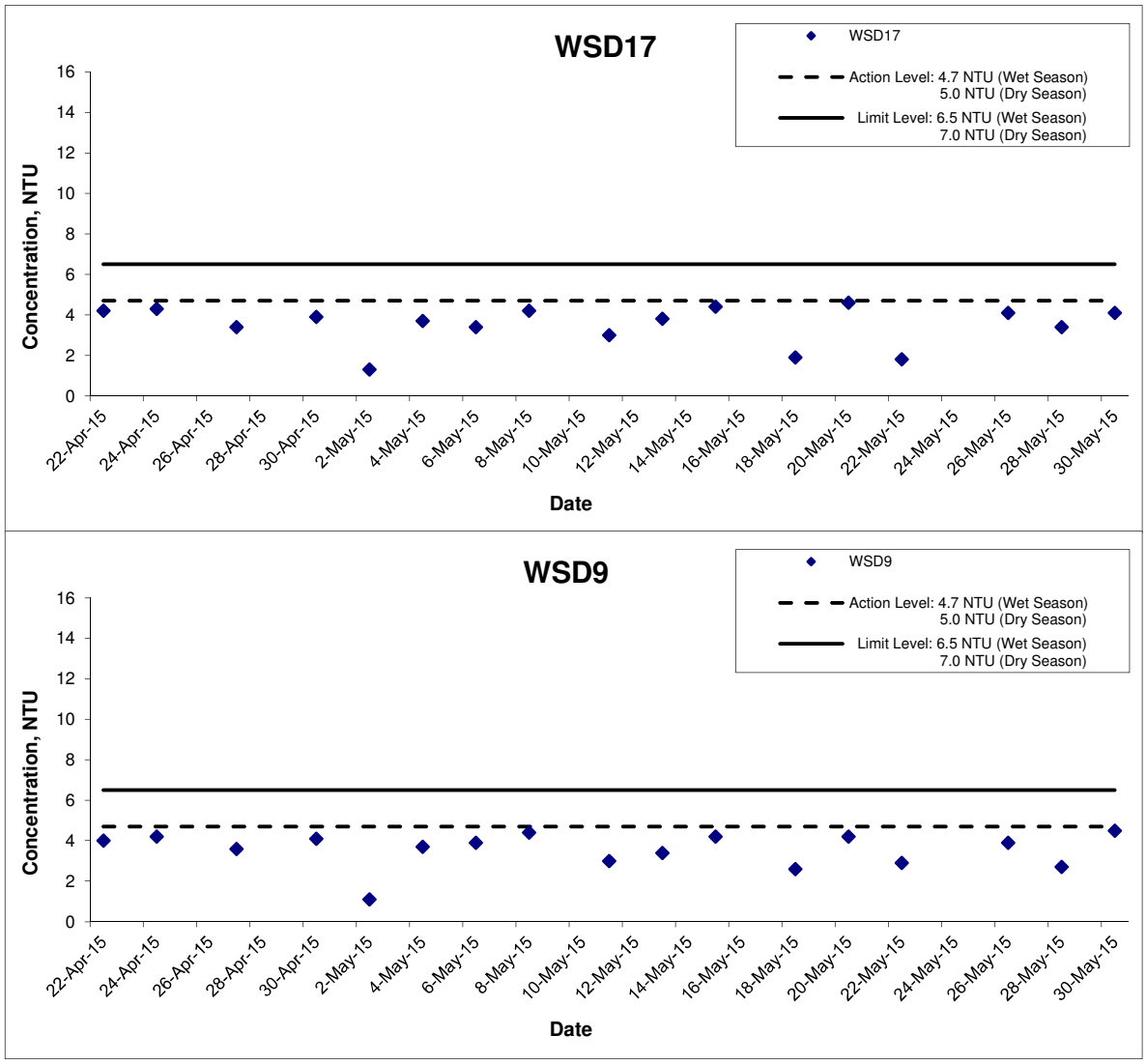
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No. MA14047
		Date	May 15	Appendix D

Turbidity (Depth-averaged) at Mid-Ebb Tide



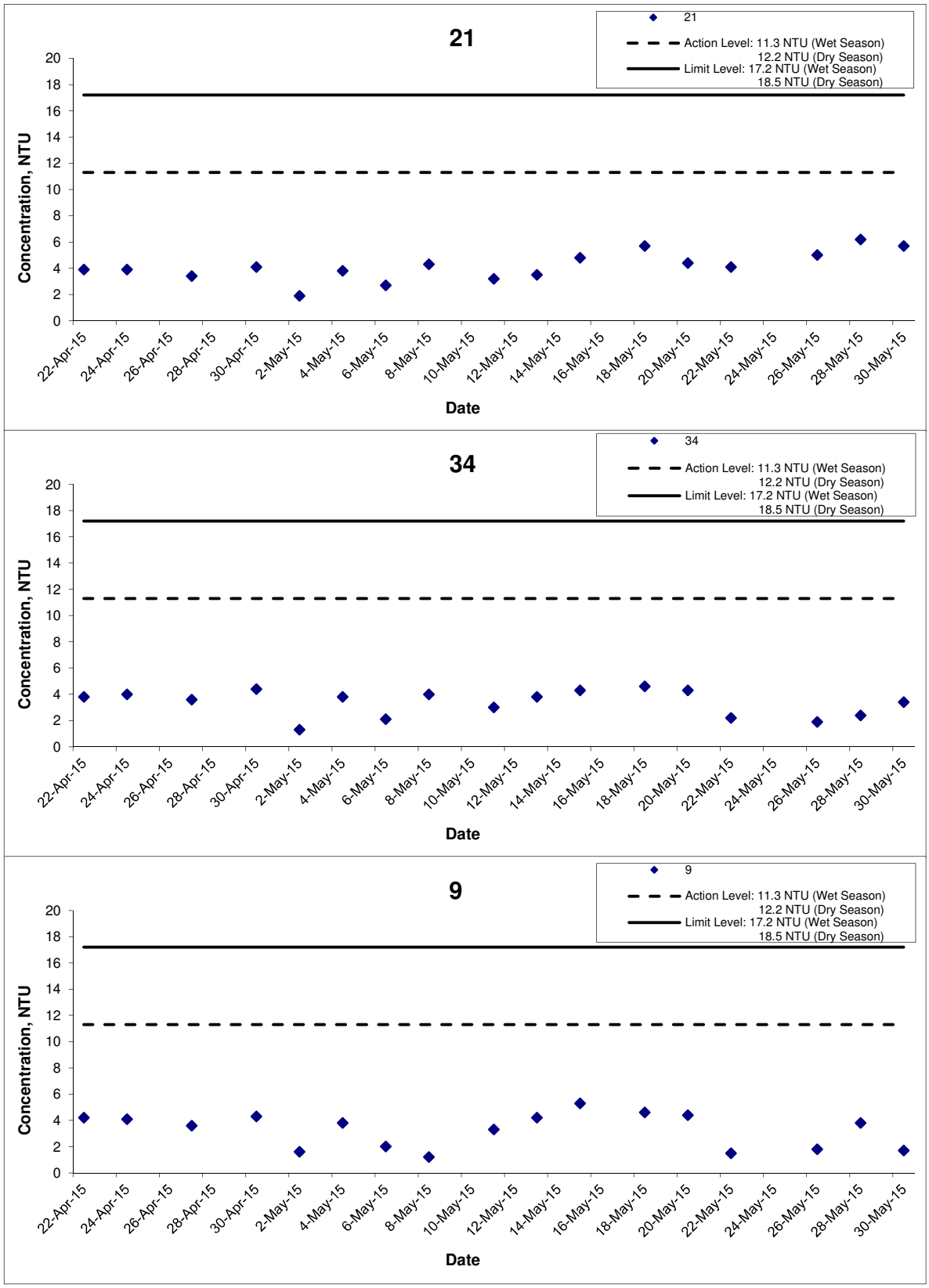
Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	CINOTECH
		Date May 15	Appendix D	

Turbidity (Depth-averaged) at Mid-Ebb Tide



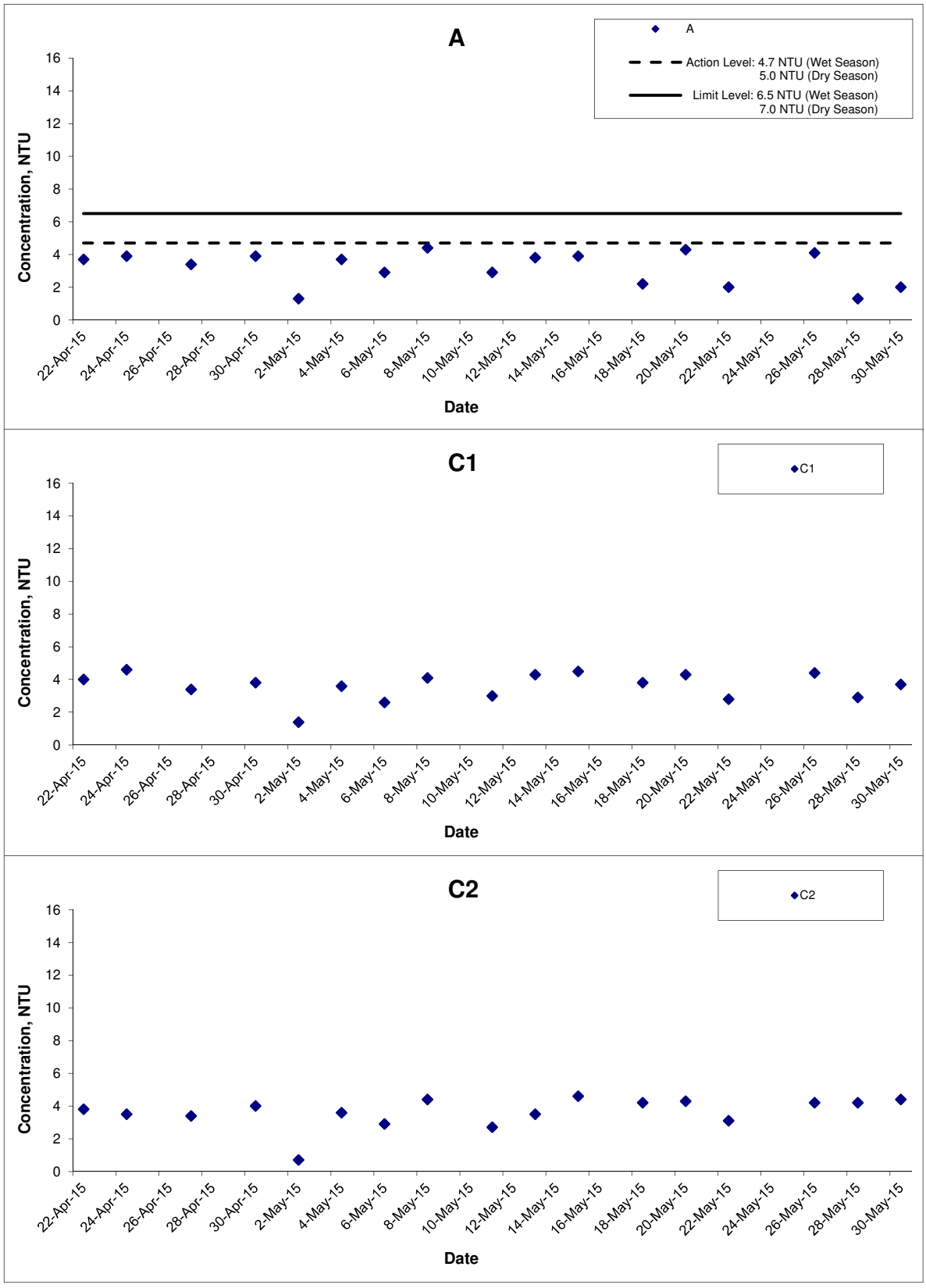
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Turbidity (Depth-averaged) at Mid-Flood Tide



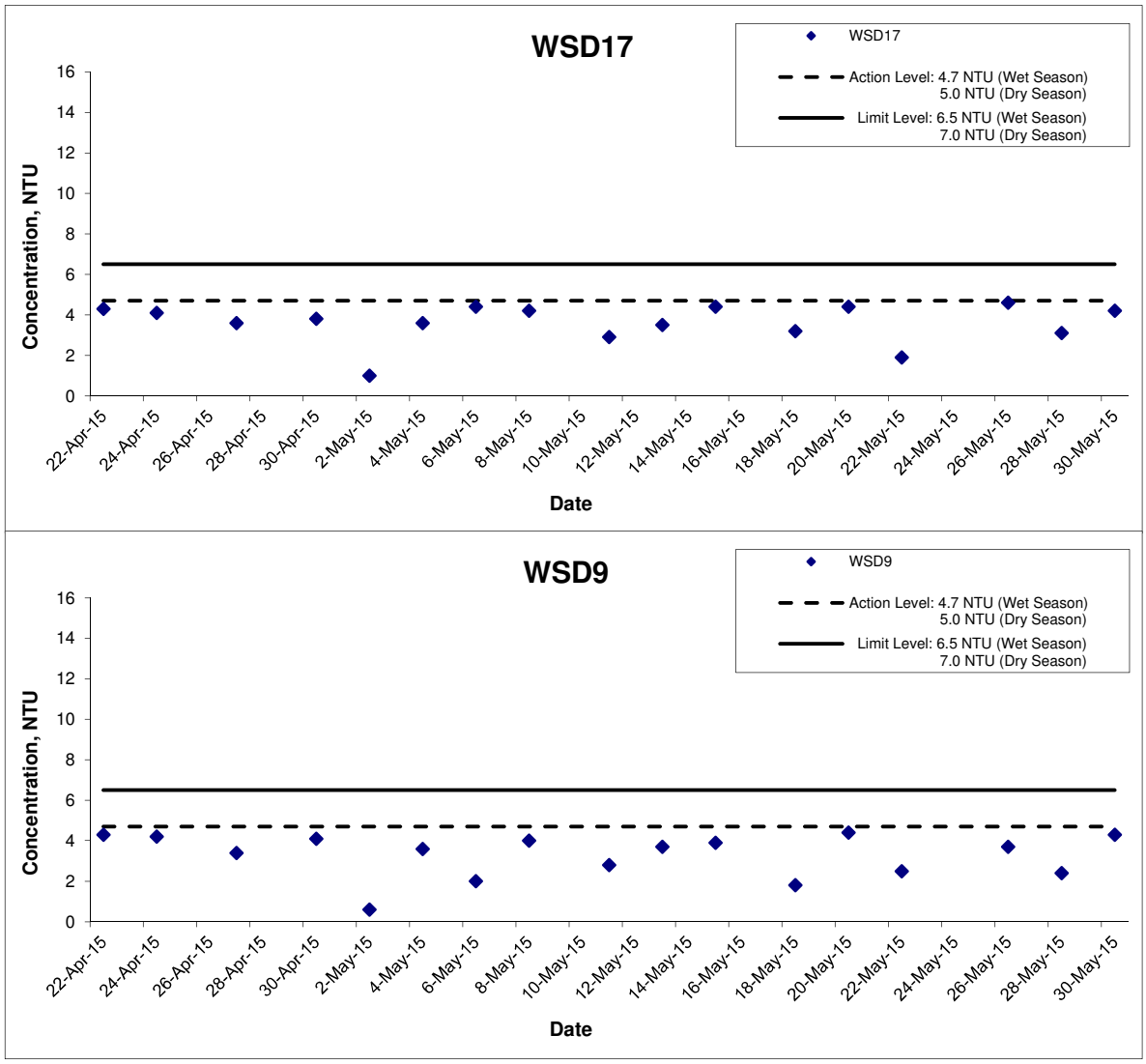
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Turbidity (Depth-averaged) at Mid-Flood Tide



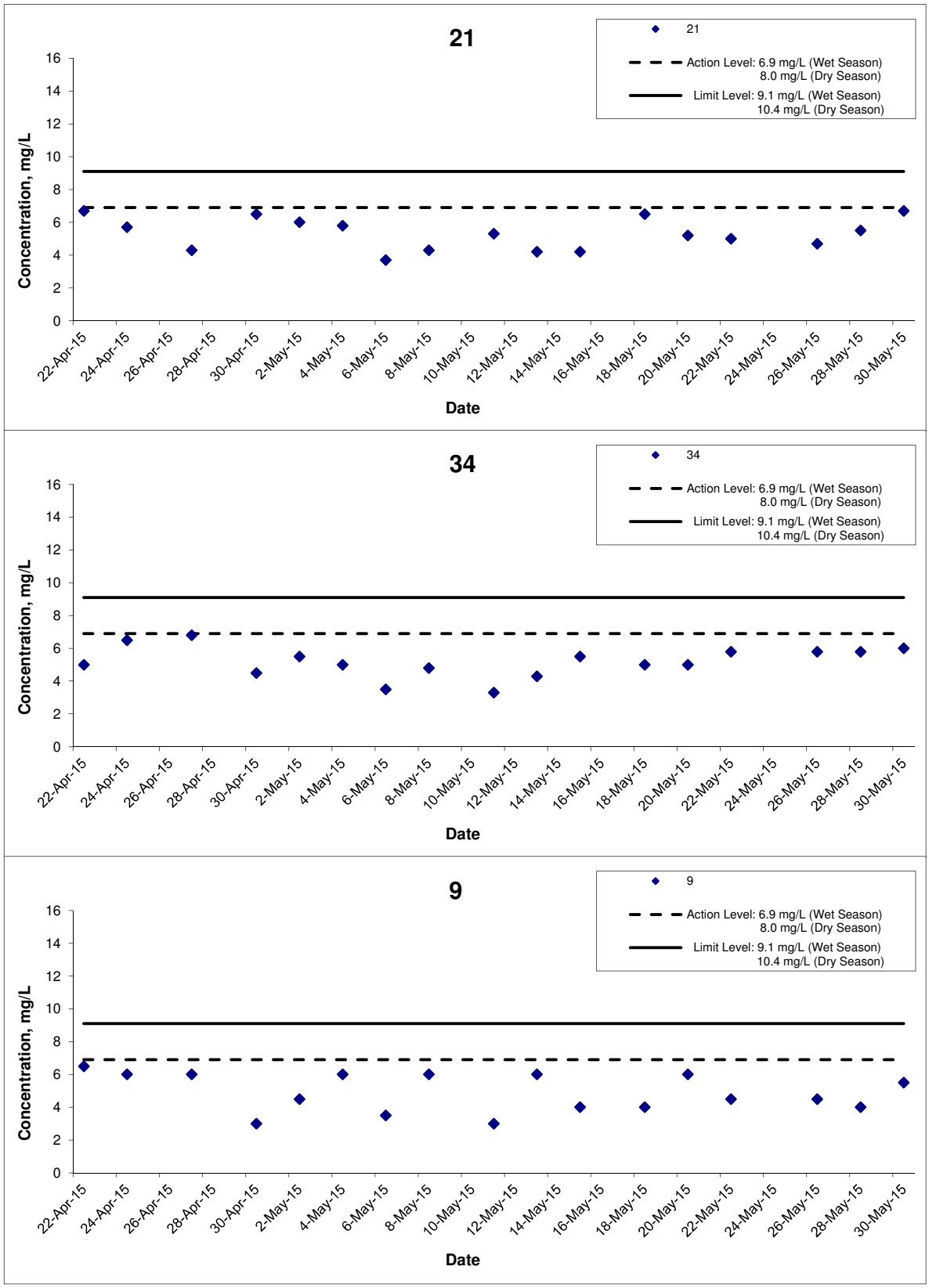
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Turbidity (Depth-averaged) at Mid-Flood Tide



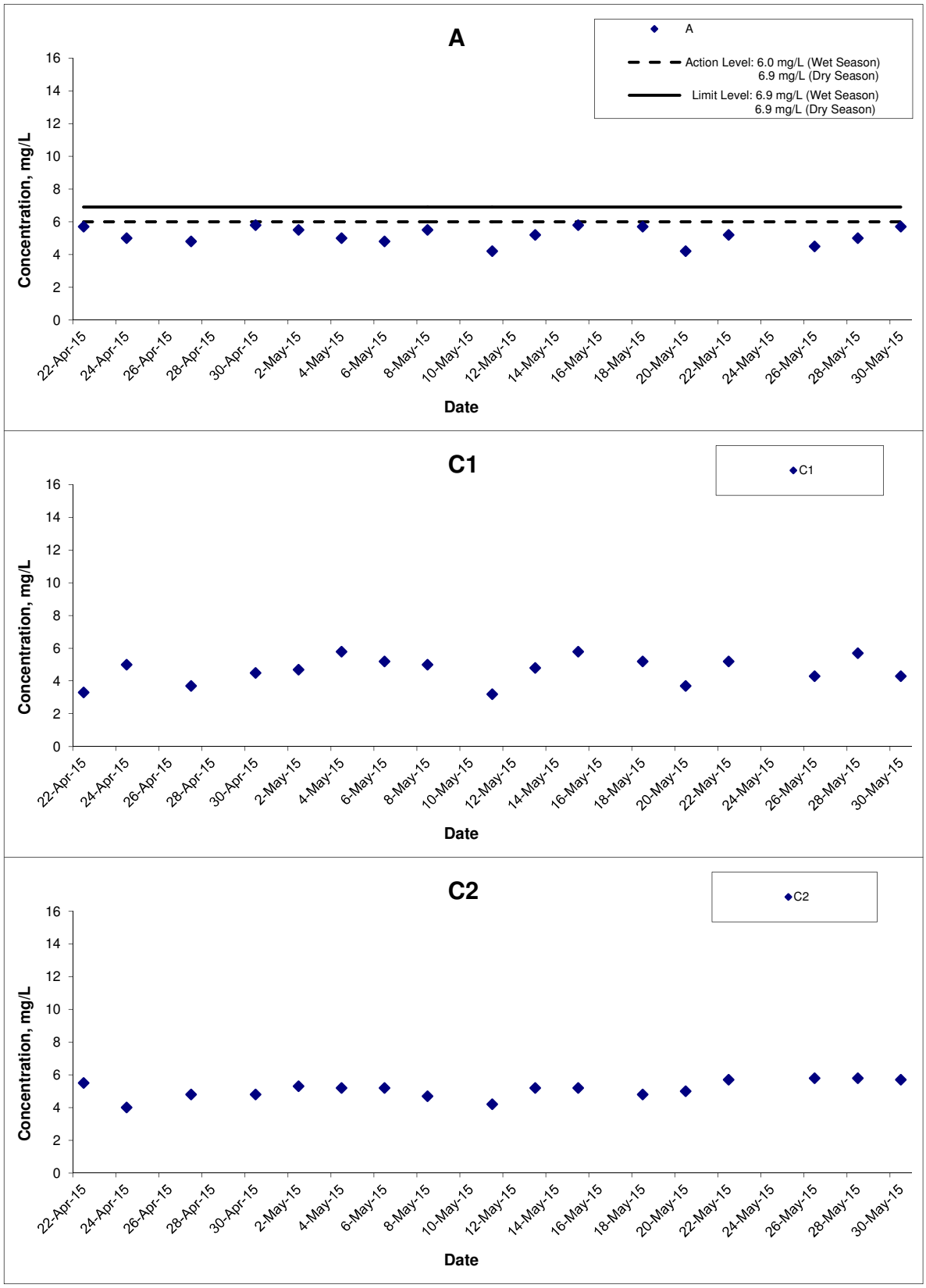
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



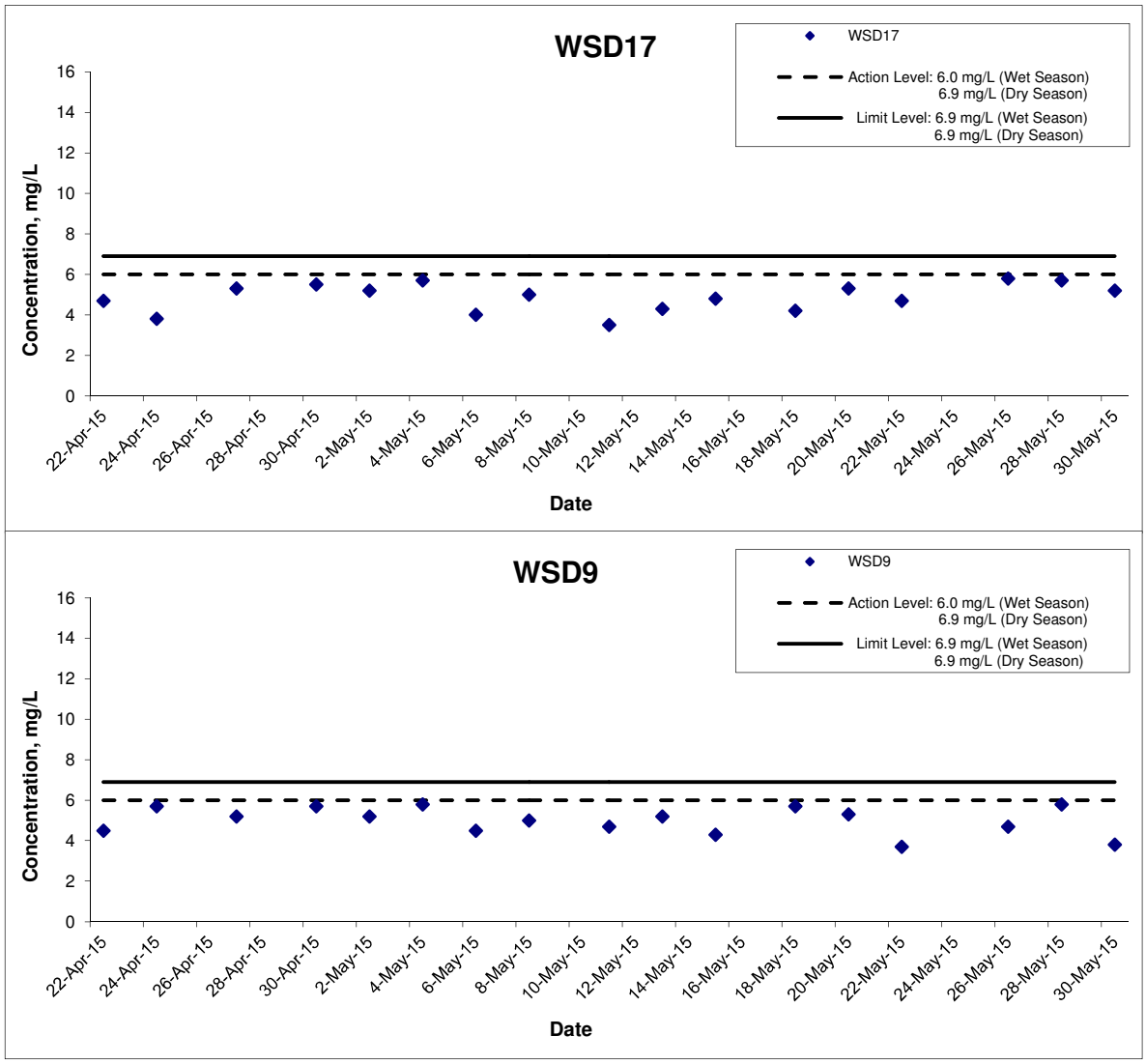
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



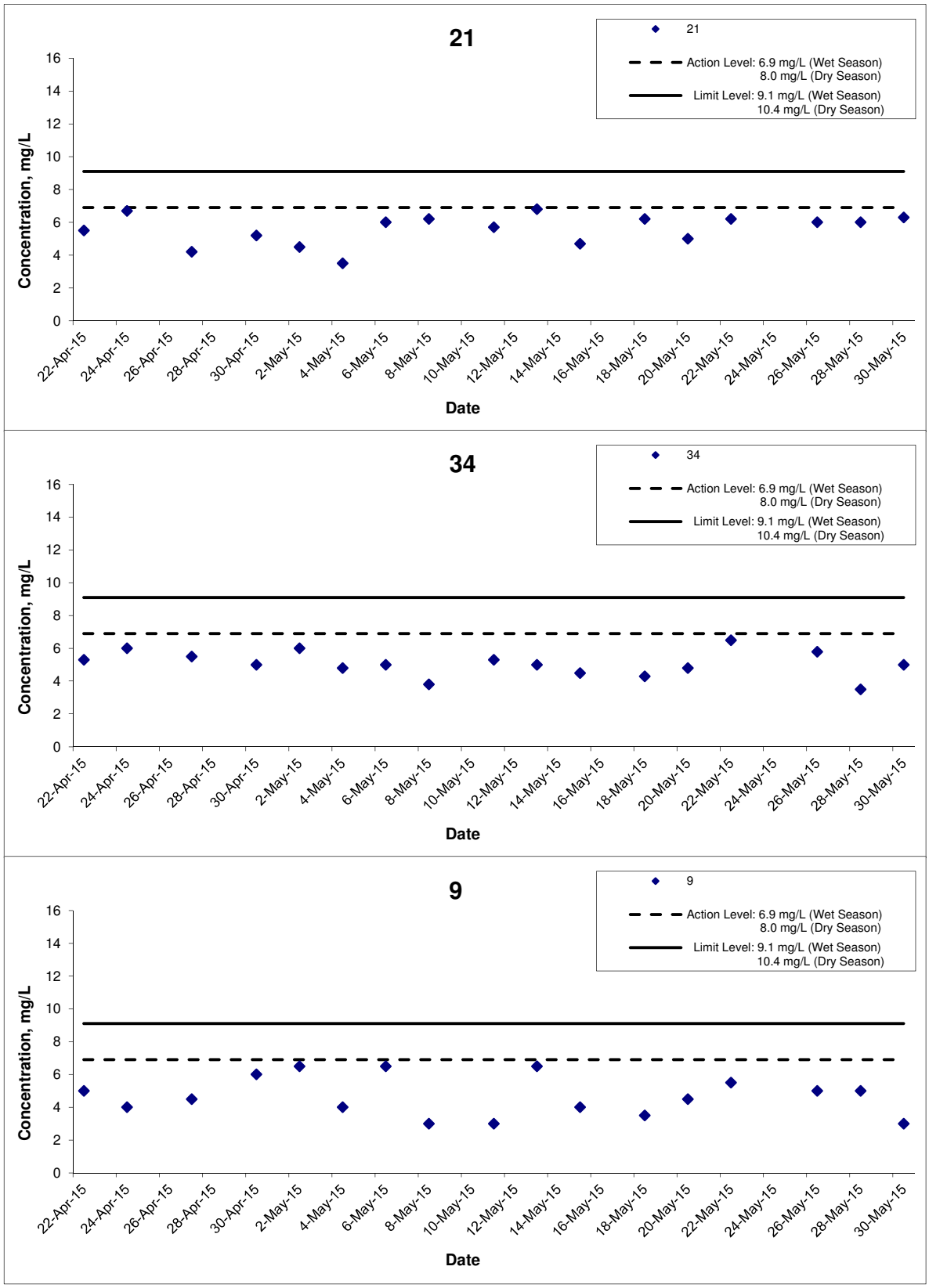
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



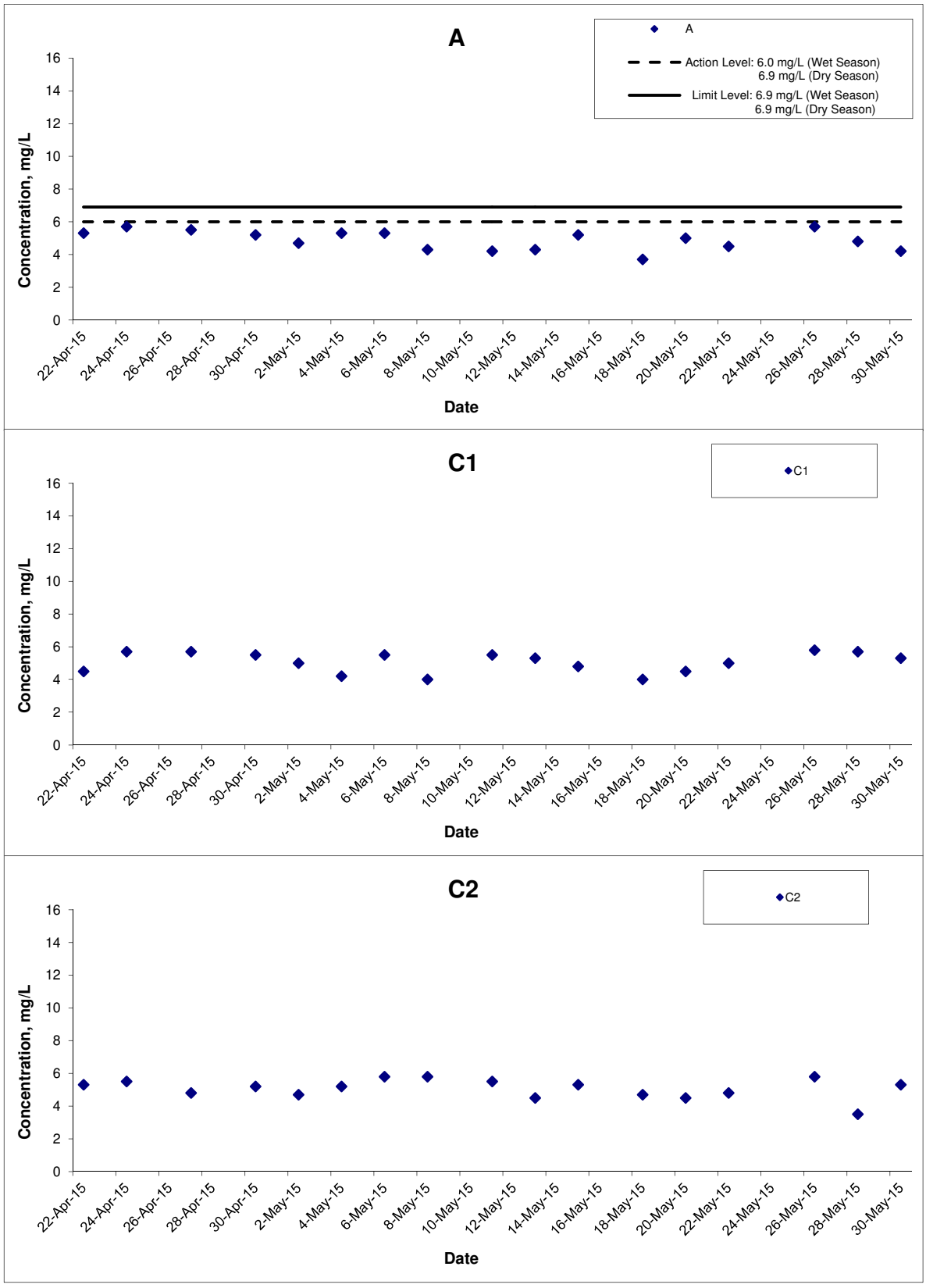
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



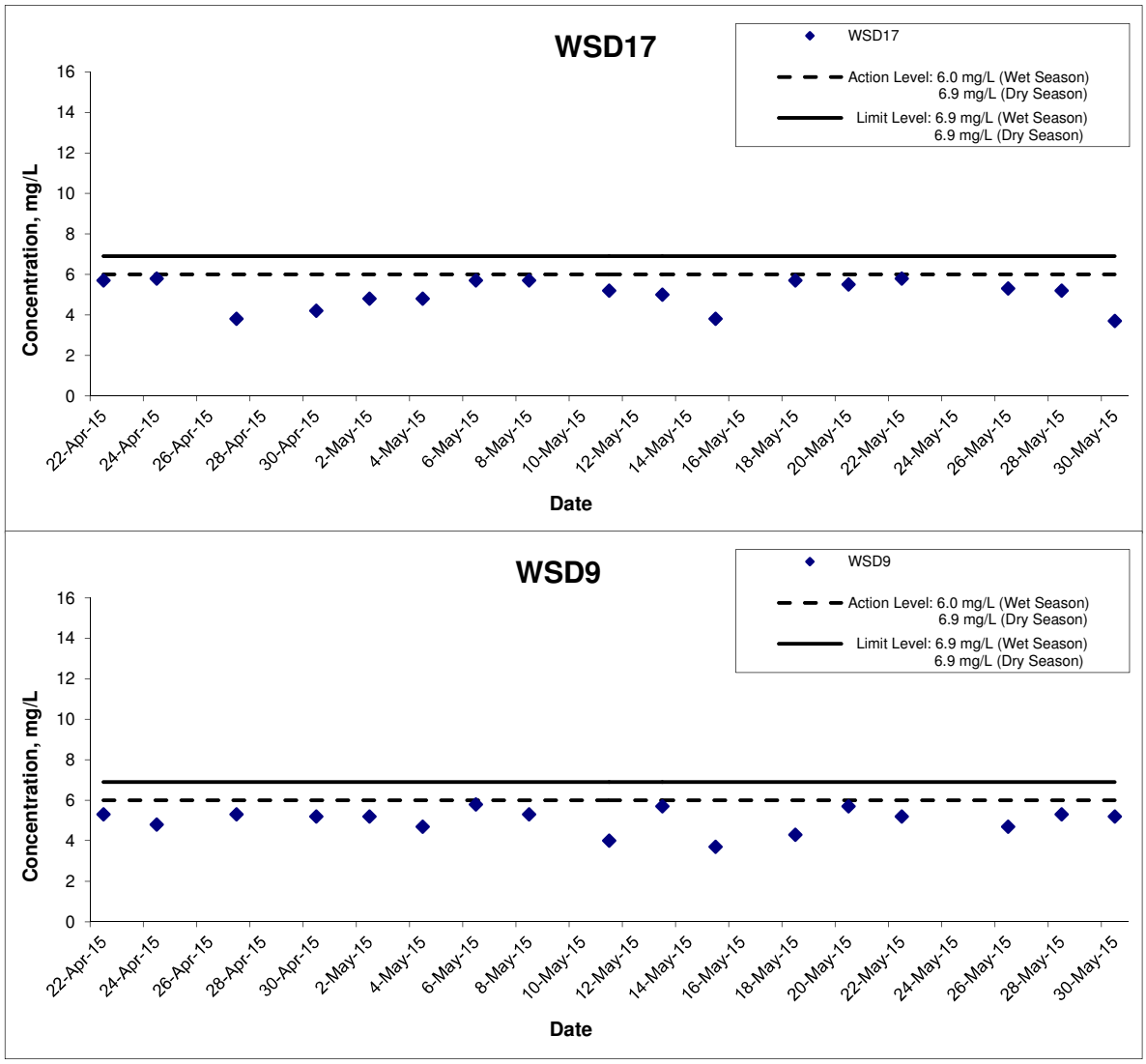
Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	CINOTECH
	Date: May 15	Appendix: D	

APPENDIX E
COPIES OF CALIBRATION CERTIFICATES

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/W/150216-1
Date of Issue:	2015-02-16
Date Received:	2015-02-16
Date Tested:	2015-02-16
Date Completed:	2015-02-16
Next Due Date:	2015-05-15
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	:AP-2000-D
Serial No.	:122630720
Equipment No.	: W.18.06

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 68%

Test Specifications:

Dissolved Oxygen, Conductivity & Salinity Sensor,
1. Performance check against Winkler titration
2. Conductivity performance check with Potassium Chloride standard solution
3. Salinity performance check with Sodium Chloride standard solution

Turbidity Sensor, Batch: 12213
1. Calibration check with Formazin standard solution

pH / ORP electrode, Batch: 11933
1. Calibration check with standard pH buffer
2. Redox performance check with ZoBell's standard solution

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. Aquaprobe AP-2000 Manual
2. In-house method with reference to APHA and ISO standards
   Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
   Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
   pH (ISO 10523, Section 9.1 and APHA 19ed 4500-H+ B) ,
   Redox electrode (APHA 20ed 2580)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	C/W/150216-1
Date of Issue:	2015-02-16
Date Received:	2015-02-16
Date Tested:	2015-02-16
Date Completed:	2015-02-16
Next Due Date:	2015-05-15
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Instrument Reading	Theoretical Value		
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Redox Meter check

Redox, mV		Acceptable range
Instrument Reading	Theoretical Value	
228	229	229±10

7. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/W/150216-3
Date of Issue:	2015-02-16
Date Received:	2015-02-16
Date Tested:	2015-02-16
Date Completed:	2015-02-16
Next Due Date:	2015-05-15
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	:AP-2000-D
Serial No.	: 122430520
Equipment No.	: W.18.08

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 68%

Test Specifications:

Dissolved Oxygen, Conductivity & Salinity Sensor,
1. Performance check against Winkler titration
2. Conductivity performance check with Potassium Chloride standard solution
3. Salinity performance check with Sodium Chloride standard solution

Turbidity Sensor, Batch: 12213
1. Calibration check with Formazin standard solution

pH / ORP electrode, Batch: 11933
1. Calibration check with standard pH buffer
2. Redox performance check with ZoBell's standard solution

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. Aquaprobe AP-2000 Manual
2. In-house method with reference to APHA and ISO standards
   Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
   Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
   pH (ISO 10523, Section 9.1 and APHA 19ed 4500-H+ B) ,
   Redox electrode (APHA 20ed 2580)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse
PATRICK TSE
Laboratory Manager

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	C/W/150216-3
Date of Issue:	2015-02-16
Date Received:	2015-02-16
Date Tested:	2015-02-16
Date Completed:	2015-02-16
Next Due Date:	2015-05-15
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Instrument Reading	Theoretical Value		
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Redox Meter check

Redox, mV		Acceptable range
Instrument Reading	Theoretical Value	
228	229	229±10

7. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/W/150422-2
Date of Issue:	2015-04-22
Date Received:	2015-04-22
Date Tested:	2015-04-22
Date Completed:	2015-04-22
Next Due Date:	2015-07-21
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	: AP-2000-D
Serial No.	: 128041320
Equipment No.	: W.18.09

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 66 %

Test Specifications:

Dissolved Oxygen, Conductivity & Salinity Sensor,
1. Performance check against Winkler titration
2. Conductivity performance check with Potassium Chloride standard solution
3. Salinity performance check with Sodium Chloride standard solution

Turbidity Sensor, Batch: 12213
1. Calibration check with Formazin standard solution

pH / ORP electrode
1. Calibration check with standard pH buffer
2. Redox performance check with ZoBell's standard solution

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. Aquaprobe AP-2000 Manual
2. In-house method with reference to APHA and ISO standards
   Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
   Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
   pH (ISO 10523, Section 9.1 and APHA 19ed 4500-H+ B) ,
   Redox electrode (APHA 20ed 2580)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	C/W/150422-2
Date of Issue:	2015-04-22
Date Received:	2015-04-22
Date Tested:	2015-04-22
Date Completed:	2015-04-22
Next Due Date:	2015-07-21
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Instrument Reading	Theoretical Value		
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Redox Meter check

Redox, mV		Acceptable range
Instrument Reading	Theoretical Value	
228	229	229±10

7. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/W/150422-3
Date of Issue:	2015-04-22
Date Received:	2015-04-22
Date Tested:	2015-04-22
Date Completed:	2015-04-22
Next Due Date:	2015-07-21
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	: AP-2000-D
Serial No.	: 135240420
Equipment No.	: W.18.10

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 66 %

Test Specifications:

Dissolved Oxygen, Conductivity & Salinity Sensor,
1. Performance check against Winkler titration
2. Conductivity performance check with Potassium Chloride standard solution
3. Salinity performance check with Sodium Chloride standard solution

Turbidity Sensor, Batch: 13364
1. Calibration check with Formazin standard solution

pH / ORP electrode, Batch: 13504
1. Calibration check with standard pH buffer
2. Redox performance check with ZoBell's standard solution

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. Aquaprobe AP-2000 Manual
2. In-house method with reference to APHA and ISO standards
   Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
   Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
   pH (ISO 10523, Section 9.1 and APHA 19ed 4500-H+ B) ,
   Redox electrode (APHA 20ed 2580)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse
PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T. Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	C/W/150422-3
Date of Issue:	2015-04-22
Date Received:	2015-04-22
Date Tested:	2015-04-22
Date Completed:	2015-04-22
Next Due Date:	2015-07-21
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Instrument Reading	Theoretical Value		
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0.0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.2
Half-saturated	5.6	5.6	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Redox Meter check

Redox, mV		Acceptable range
Instrument Reading	Theoretical Value	
228	229	229±10

7. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

APPENDIX F
QUALITY CONTROL REPORTS FOR SS LABORATORY ANALYSIS

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22356
Date of Issue:	2015/05/04
Date Received:	2015/05/02
Date Tested:	2015/05/02
Date Completed:	2015/05/04
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/02
Number of Sample: 84
Custody No.: MA14047/150502

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD17se	6	7	3	105

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22360
Date of Issue:	2015/05/05
Date Received:	2015/05/04
Date Tested:	2015/05/04
Date Completed:	2015/05/05
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/04
Number of Sample: 84
Custody No.: MA14047/150504

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	6	6	8	99

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22374
Date of Issue:	2015/05/07
Date Received:	2015/05/06
Date Tested:	2015/05/06
Date Completed:	2015/05/07

ATTN: Ms. Mei Ling Tang Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2015/05/06

Number of Sample: 84

Custody No.: MA14047/150506

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	6	6	4	109

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22394
Date of Issue:	2015/05/11
Date Received:	2015/05/08
Date Tested:	2015/05/08
Date Completed:	2015/05/11
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/08
Number of Sample: 84
Custody No.: MA14047/150508

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	4	3	8	99

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22404
Date of Issue:	2015/05/12
Date Received:	2015/05/11
Date Tested:	2015/05/11
Date Completed:	2015/05/12
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/11
Number of Sample: 84
Custody No.: MA14047/150511

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C2bf	7	7	4	102

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22416
Date of Issue:	2015/05/14
Date Received:	2015/05/13
Date Tested:	2015/05/13
Date Completed:	2015/05/14
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/13
Number of Sample: 84
Custody No.: MA14047/150513

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	6	7	14	101

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22429
Date of Issue:	2015/05/18
Date Received:	2015/05/15
Date Tested:	2015/05/15
Date Completed:	2015/05/18
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/15
Number of Sample: 84
Custody No.: MA14047/150515

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C1bf	7	7	4	99

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22443
Date of Issue:	2015/05/19
Date Received:	2015/05/18
Date Tested:	2015/05/18
Date Completed:	2015/05/19
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/18
Number of Sample: 84
Custody No.: MA14047/150518

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	8	8	2	101

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22458
Date of Issue:	2015/05/21
Date Received:	2015/05/20
Date Tested:	2015/05/20
Date Completed:	2015/05/21
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/20
Number of Sample: 84
Custody No.: MA14047/150520

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD17me	7	7	3	101

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22467
Date of Issue:	2015/05/26
Date Received:	2015/05/22
Date Tested:	2015/05/22
Date Completed:	2015/05/26
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/22
Number of Sample: 84
Custody No.: MA14047/150522

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
Abe	9	10	2	104

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22485
Date of Issue:	2015/05/27
Date Received:	2015/05/26
Date Tested:	2015/05/26
Date Completed:	2015/05/27
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/26
Number of Sample: 84
Custody No.: MA14047/150526

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	7	7	1	101

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22498
Date of Issue:	2015/05/29
Date Received:	2015/05/28
Date Tested:	2015/05/28
Date Completed:	2015/05/29

ATTN: Ms. Mei Ling Tang Page: 1 of 1

Project Name: Shatin to Central Link - Contract No.1121
- NSL Cross Harbour Tunnels

Sampling Date: 2015/05/28

Number of Sample: 84

Custody No.: MA14047/150528

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9se	7	7	0	100

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

QC REPORT

APPLICANT: Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Laboratory No.:	22521
Date of Issue:	2015/06/01
Date Received:	2015/05/30
Date Tested:	2015/05/30
Date Completed:	2015/06/01
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Shatin to Central Link - Contract No.1121 - NSL Cross Harbour Tunnels
Sampling Date: 2015/05/30
Number of Sample: 84
Custody No.: MA14047/150530

****

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
WSD9bf	8	8	3	102

**********END OF REPORT**********

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: May 2015

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150504
Date	4 May 2015 (Monday)
Time	13:00 – 17:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Ecology / Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part F - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part G – Waste/Chemical Management***	
150504-O01	• Drip tray of sufficient size should be provided to the chemical containers at the casting basin at Shek O in order to prevent chemical spillage.	G 10
150504-R02	• Oil and chemical stain on the ground at Shek O should be properly removed as chemical waste and stored in chemical waste cupboard for subsequent disposal.	G 9
150504-R03	• Construction wastes stored in the skips near the site office at Shek O should be removed as soon as possible or else they should be covered to prevent being blown away by wind. The construction waste at the casting basin should also be properly disposed of.	G 1i, iii
	Part H – Permits/Licenses • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:150427), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		5 May 2015
Checked by	Dr. Priscilla Choy		5 May 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150511
Date	11 May 2015 (Monday)
Time	14:00 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150511-O02	***Part B – Water Quality*** • Silt curtain near Hung Hom Landfall observed "opened" during the dredging works. The Contractor is reminded to completely close the silt curtain during marine works. ***Part C – Ecology / Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part F - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part G – Waste/Chemical Management***	B 36
150511-O01	• Drip tray of sufficient size should be provided to the chemical containers at the casting basin at Shek O in order to prevent chemical spillage.	G 10
150511-R03	• Clear the stagnant rain water of the drip tray of generator-set in Shek O. ***Part H – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:150504), follow up action is needed to be review for the item:150504-O01.	G 10

	Name	Signature	Date
Recorded by	Johnny Fung		11 May 2015
Checked by	Dr. Priscilla Choy		11 May 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150518
Date	18 May 2015 (Monday)
Time	14:00 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150518-O01	***Part B – Water Quality*** • Overlapping at the opening of silt curtain near Hung Hom Landfall was not observed. The Contractor is reminded ot provide the overlapping as required in the Silt Curtain Deployment Plan. ***Part C – Ecology / Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part F - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection.	B 36
150518-R02	***Part G – Waste/Chemical Management*** • To provide a plug for hole of drip tray of generator-set in Shek O. ***Part H – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:150511), all environmental deficiencies were observed to be improved/rectified by the Contractor.	G 10

	Name	Signature	Date
Recorded by	Johnny Fung		18 May 2015
Checked by	Dr. Priscilla Choy		18 May 2015

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	150529
Date	29 May 2015 (Friday)
Time	14:45 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
150529-R01	***Part B – Water Quality*** • No environmental deficiency was identified during the site inspection. ***Part C – Ecology / Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part E – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part F - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part G – Waste/Chemical Management*** • Perform sorting for chemical waste container from the general refuse. ***Part H – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part I - Others*** • Follow-up on previous audit section (Ref. No.:150518), all environmental deficiencies were observed to be improved/rectified by the Contractor.	G 2ii, 2iii

	Name	Signature	Date
Recorded by	Johnny Fung		29 May 2015
Checked by	Dr. Priscilla Choy		29 May 2015

APPENDIX I
EVENT AND ACTION PLANS

Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
Action level being exceeded by one sampling day	1. Inform the Contractor, IEC and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; and 3. Discuss remedial measures with the IEC and Contractor.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented mitigation measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Supervise the implementation of agreed remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER; and 7. Implement the agreed remedial measures.
Action level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC and ER; 3. Check monitoring data, all plant, equipment and the Contractor's working methods; 4. Discuss remedial measures with the IEC and Contractor; and 5. Ensure remedial measures are implemented.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with the ET and IEC on the effectiveness of the implemented remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 7. Implement the agreed remedial measures.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT LEVEL				
1. Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC, EPD and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss with the ET and IEC and propose remedial measures to the IEC, EPD and ER; and 6. Ensure the agreed remedial measures are implemented.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Assess the effectiveness of the implemented remedial measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET , IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 6. Implement the agreed remedial measures.
2. Limit level being exceeded by more than one consecutive sampling days	1. Inform the Contractor, IEC, EPD and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; 3. Discuss remedial measures with the IEC, EPD, ER and Contractor; 4. Ensure remedial measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit level	1. Discuss with the ET, ER and Contractor on the implemented measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with the the ET, IEC and Contractor on the effectiveness of the implemented remedial measures; and 5. Consider and instruct, if necessary,	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; 7. Implement the agreed remedial measures; and

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	for two consecutive days.		the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	8. As directed by the ER, to slow down or to stop all or part of the marine works or construction activities.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Cultural Heritage Impact (Construction Phase)							
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai	Construction phase	EIAO	N/A
Ecology (Construction Phase)							
S 5.133	The following mitigation measures in controlling water quality change shall be implemented: - Installation of silt curtains around the dredgers, where appropriate, during dredging activities; - Use of closed grab dredger during dredging; and - Reduction of dredging rate	To minimize changes in water quality impact on marine flora and fauna	Contractor	All reclamation and dredging works areas	Construction phase	• EIAO-TM	N/A N/A N/A
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	^
ERR S3.6.3	Installation of floating type silt curtains around the area of construction and removal of earth bund	Minimize indirect impact to the nearby subtidal and	Contractor	Shek O Casting Basin	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		intertidal flora and fauna					
Fisheries Impact							
S5.132	The size of the dredging and underwater blasting areas shall be minimized as much as possible	To minimize loss of fishing ground and fisheries resources	Contractor/ MTR	All dredging and underwater blasting works areas	Construction phase	• EIAO-TM	N/A
S5.133	Mitigation measures recommended in Sections 11.200 to 11.207, 11.209 to 11.211 and 11.213 to 11.256 of the EIA Report to control water quality, i.e. use of effective site drainage in land-based construction site and installation of silt curtain surrounding the dredging point, use of closed grab dredger and reduction of dredging rate shall be implemented.	To minimize change in water quality impact on fisheries resources and operation	Contractor	Works Areas	Construction phase	• EIAO-TM	N/A
S6.59	After completion of armour rock filling, the final surfaces of the protective armour tock layer shall be checked by ultrasonic sounding survey. Measures such as removing the rock or breaking the rock into pieces shall be implemented in case of non-compliance	To minimize the IMT protrusion above the seabed	Contractor	Along IMT laying works areas	Construction phase	• EIAO-TM	N/A
Landscape & Visual (Construction Phase)							

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and deposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	All works sites	Construction phase	• EIAO-TM	N/A
Construction Dust Impact							
EP 2.25	All diesel fuelled construction plant used by the contractors within the works areas of the Project shall be powered by	Mitigating Aerial Emissions from Construction Plant	Contractor	All works areas	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	ultra-low sulphur diesel fuel.						
Table 8.5	Barging facilities: (i) Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual (ii) Vehicles leaving the barging facilities – Pass vehicles	To minimize dust impacts	Contractor	Barging facility at Shek O Casting Basin	Construction phase	APCO	N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	through the wheel washing facilities provided at site exits.						
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	APCO	N/A
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	APCO	N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	(iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in "wet form". (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.						N/A N/A N/A N/A
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m^2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet	To minimize dust impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV • Shek O	Construction phase	APCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m^2 for Kowloon side and 1.0 L/m^2 for Hong Kong sideto achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.			Casting Basin			
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering	To minimize dust impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	shall be applied to aggregate fines. - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. - Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. - Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. - Imposition of speed controls for vehicles on site haul roads. - Where possible, routing of vehicles and positioning of						^ ^ N/A N/A N/A ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	construction plant shall be at the maximum possible distance from ASRs. - Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. - Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.						N/A N/A
Air Quality (Construction Phase)							
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
Construction Noise (Airborne)							
S9.55	Implement the following good site practices:	Control construction	Contractor	Works areas	Construction	• EIAO-TM	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	airborne noise			phase		^ ^ ^ ^ ^ ^
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom	Construction stage	• EIAO-TM	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory			• Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV			
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of	Construction stage	• EIAO-TM	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete			CBTS • Breakwater of CBTS to SOV			
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV	Construction stage	• EIAO-TM	N/A
Water Quality (Construction Phase)							

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.200 & 201	All excavation and tunnel construction works will be undertaken within the cofferdam and there will be no open dredging. Removal of fender piles of Hung Hom Bypass and minor marine piling works will be carried out prior to the construction of the elevated platform adjacent to the cofferdam at Hung Hom Landfall. Reinstatement of the fender piles will be carried out upon completion of tunnel section. Potential release of sediment due to abovementioned works could be minimized by installation of silt curtains surrounding the works area as appropriate. All excavation and tunnel construction works will be undertaken within the cofferdam. No open dredging shall be allowed.	To minimize release of sediment and contaminants during temporary reclamation.	Contractor	Marine works at Hung Hom Landfall	Construction phase	• EIAO-TM • WPCO	N/A * N/A
S11.202	All temporary reclamation works will adopt an approach where temporary seawalls will first be formed to enclose each phase of the temporary reclamation. Installation of diaphragm wall on temporary reclamation as well as any bulk filling will proceed behind the completed seawall. Any gaps that may need to be provided for marine access will be shielded by silt curtains to control sediment plume dispersion away from the	To minimize loss of fines and contaminants during temporary reclamations	Contractor	All temporary reclamation works areas	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	site. Demolition of temporary reclamation including the demolition of the diaphragm wall and dredging to the existing seabed levels will also be carried out behind the temporary seawall. Temporary seawall will be removed after completion of all excavation and dredging works for demolition of the temporary reclamation.						
S11. 202	During construction of the temporary reclamation, temporary seawall will be partially constructed to protect the nearby seawater intakes from further dredging activities. For example, the seawalls along the southeast and northeast boundaries of PW1.1 shall be constructed first (above high water mark) so that the seawater intake at the inner water would be protected from the impacts from the remaining dredging activities along the northwest boundary.	To minimize water quality impact upon the cooling water intakes in CBTS from temporary reclamation works	Contractor	Temporary reclamation works areas in CBTS	Construction phase	• EIAO-TM • WPCO	N/A
S11. 202	Dredging will be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging.	To minimize loss of fines and contaminants during dredging in CBTS	Contractor	All temporary reclamation and dredging works areas within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
S11. 202 & Table	Silt curtains will be deployed to fully enclose the closed grab	To minimize loss of fines	Contractor	All temporary	Construction	• EIAO-TM	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
11.25	dredger and shall be extended from water surface to the seabed, as far as practicable, during any dredging operation.	and contaminants during dredging in CBTS		reclamation and dredging works areas within CBTS	phase	• WPCO	
S11. 202 & Table 11.23	Silt screens will be installed at the cooling water intakes within the CBTS during the temporary reclamation period.	To minimize water quality impact upon the cooling water intakes in CBTS from marine construction activities	Contractor	Cooling water intakes inside CBTS	Construction phase	• EIAO-TM • WPCO	N/A
S11. 203 & Table 11.24	No more than two dredgers (of about 8 m^3 capacity each) shall be operated for dredging within the typhoon shelter at any time for the tunnel construction works. Moreover, the combined dredging rate for all concurrent dredging works (include dredging works for concurrent projects such as WDII and CWB) to be undertaken within the CBTS shall not exceed 4,500 m^3 per day (and 281 m^3 per hour with a maximum working period of 16 hours per day) throughout the entire construction period.	To minimize loss of fines and contaminants during dredging in CBTS	Contractor	All dredging works areas within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
ERR 6.7.1	Closed grab dredger shall be used for any dredging operations, except at for removal of fill material at the gap at the IMT/ME4 interface, which will be carried out by air lift or	To minimize water quality impact in CBTS from marine construction	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	sand pump method	activities					
ERR 6.7.1	Fill materials removed by air lift or sand pumping method shall be stored inside impermeable compartment of the barge	To minimize water quality impact in CBTS from marine construction activities	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
ERR 6.7.1	Bulk filling operation within CBTS shall be carried out by closed grab dredger and/or by feeding the fill material into a down pipe for placing of fill materials	To minimize water quality impact in CBTS from marine construction activities	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
EP 2.18.1a	Pipe piles shall be used to form temporary seawalls for IMT construction within CBTS.	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
EP 2.18.1b	The temporary seawalls shall not be removed before completion of all dredging or filling works for IMT construction, except for a small section of pipe piles adjoining IMT11 to facilitate the necessary dredging works for placing the IMT11.	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	N/A
EP 2.18.1j	Water quality monitoring shall be conducted at cooling water intake 9 for Windsor House during IMT construction within CBTS. The monitoring frequency, parameters, equipment and methodology shall follow those for dredging and filling as	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	stipulated in the EM&A Manual.						
S11. 204	Bulk filling along the IMT tunnel alignment for SCL shall be carried out after the bulk dredging works along the IMT alignment are completed. Hence, bulk dredging and bulk filling along the IMT alignment shall not be undertaken at the same time.	To minimize loss of fines and contaminants during IMT construction	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A
S11. 204	Dredging for IMT and SCL2 construction shall be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging.	To minimize loss of fines and contaminants during dredging in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A
S11.204	No more than one closed grab dredger shall be operated outside the CBTS in the open harbor for SCL construction.	To minimize loss of fines and contaminants from dredging in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A
S11. 204	Dredging for temporary reclamation outside the CBTS (at SCL2) shall not be carried out concurrently with the dredging / filling works for IMT construction.	To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A
S11. 205	Floating type or frame type silt curtains shall be deployed around the dredging operations within 200m from the Hung Hom landfall.	To minimize loss of fines and contaminants from dredging in the Victoria	Contractor	Construction of northern IMT segment in the	Construction phase	• EIAO-TM • WPCO	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		Harbour		near shore region within 200 m from the Hung Hom landfall			
EP 2.19e	Frame type silt curtains shall be deployed around the dredging operations for the remaining IMT segments outside 200 m from the Hung Hom landfall.	To minimize water quality impacts in Victoria Harbour from IMT construction	Contractor	Construction of northern IMT segment in Victoria Harbour outside 200m from the Hung Hom landfall	Construction phase	• EIAO-TM • WPCO	N/A
S11. 205 & Table 11.23	Silt screens shall be installed at the cooling water intakes for East Rail Extension, Metropolis and Hong Kong Coliseum (namely 21, 34 and 35 respectively) which are in close vicinity of the northern IMT segment.	To protect the beneficial use of water intakes along the Kowloon waterfront from dredging / filling activities	Contractor	Construction of northern IMT segment in the near shore region within 200 m from the Hung Hom landfall	Construction phase	• EIAO-TM • WPCO	^
S11.207	If underwater blasting is required for SCL construction, the following precautionary / mitigation measures shall be adopted:	To protect the water quality in Victoria Harbour from any possible underwater	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Charge shall be placed in cores within the rock in order that there will be no blast directly into the water. • In terms of the construction sequence, sediment dredging (within the planned IMT works area) shall be conducted prior to any underwater blasting.	blasting					
Table 11.23	Silt screens shall be installed at the WSD Flushing Water Intakes at Kowloon Station, Tai Wan, Quarry Bay and Wan Chai (namely Intakes 14, WSD9, WSD17 and A respectively) during any dredging / filling works outside the CBTS for temporary reclamation at SCL2 or for IMT construction	To protect the beneficial use of flushing water intakes in Victoria Harbour from dredging / filling activities	Contractor	Flushing water intake points in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A
S11.210 - S11.211 & Table 11.24 ERR S6.7.1	If the marine works for SCL are to be carried out concurrently with other dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction, except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 2,500 m^3 per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS, except for	To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 156 m^3 per hour (if there are other concurrent marine works in Victoria Harbour) and the maximum working hour for the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. If the marine works for SCL are to be carried out with no other concurrent dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 4,500 m^3 per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 281 m^3 per hour (if there is no other concurrent marine works in Victoria Harbour) and the						

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	maximum working hour for the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. Only one chiseling machine or hydraulic breaker shall be adopted for rock breaking. For any dredging / filling work for IMT construction within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall: • The daily production rate shall not exceed 1,500m^3 per day • the hourly production rate shall not exceed 93m^3						N/A N/A
S11.215	The following good site practices shall be undertaken during filling and dredging: • mechanical grabs, if used, shall be designed and maintained to avoid spillage and sealed tightly while being lifted; • all vessels shall be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;	To minimize loss of fines and contaminants from dredging / filling	Contractor	Marine works areas	Construction phase	• EIAO-TM • WPCO	N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; • before commencement of the temporary reclamation works, the holder of the Environmental Permit shall submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.						N/A ^ N/A ^
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront: ・Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and	minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction phase	・ EIAO-TM ・ WPCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. ・Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. ・Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.						^ ^
S11.217	The following mitigation measures are proposed to minimize the potential water quality impacts from any marine piling works: • The potential release of sediment or excavated materials could be controlled through the installation of silt curtains surrounding the working area as necessary. • Spoil shall be collected by sealed hopper barges for proper disposal.	To minimize release of sediment and pollutants from marine piling activities	Contractor	Marine piling works areas	Construction phase	・EIAO-TM ・WPCO	^ ^
S11.218	Silt screens are recommended to be deployed at the seawater intakes during the construction works period.	To avoid the pollutant and refuse entrapment	Contractor	Proposed silt screens at water	Construction phase	・EIAO-TM ・WPCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Regular maintenance of the silt screens and refuse collection shall be performed at the silt screens at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.	problems at the silt screens to be installed at the water intakes.		intakes			
S11.219	It is recommended that collection and removal of floating refuse shall be performed within the marine construction areas at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish during the dredging works.	To minimize water quality impacts from illegal dumping and littering from marine vessels and runoff from the coastal area	Contractor	Marine works area	Construction phase	• EIAO-TM • WPCO • WDO	^
S11.220 & 221	Any wastewater including washdown waters and any concrete curing waters generated from the casting basin shall be drained to the wastewater treatment unit. Appropriate treatment process such as sedimentation and oil removal shall be employed for the wastewater treatment units so that any discharge from the casting basin will comply with standards stipulated in the TM-DSS. Recovered oil from any oil interceptor shall be properly contained, labeled and stored on site prior to collection by licensed collectors for disposal. During the flooding of the basin with seawater (accomplished	To minimize water quality impacts from the washdown, flooding and draining operation at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• EIAO-TM • WPCO	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	by pumps) no escape of water could occur as the cofferdam will still be in place. Prior to opening a channel through the cofferdam, water inside the basin will be skimmed of floating debris. A period of settling of 24 hours before opening the basin to the sea would allow much of the suspended material to settle out. The channel through the cofferdam will only be opened with the approval of the Site Engineer to the effect that all reasonable steps had been taken to remove contaminants.						
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable.	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction phase	• EIAO-TM • WPCO • TMDSS, • WDO, • ProPECC PN 1/94	^
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.						^
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	N/A
S11.252	The following good site practices shall be adopted for the proposed barging points: - all vessels shall be sized so that adequate clearance is between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash - all hopper barges shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material - construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the	To minimize water quality impacts generated from the barging points.	Contractor	Barging Points	Construction phase	• EIAO-TM • WPCO	N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	water within the site - loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation						N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	license which is under the ambit of Regional Office (RO) of EPD.						
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	*
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.						N/A N/A
ERR S 8.5.1	Floating type silt curtains would be installed around the area of construction and removal of earth bund during the respective works.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^
Waste Management (Construction Waste)							
S12.75	***Good Site Practices and Waste Reduction Measures*** - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks	reduce waste management impacts	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010	^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	or by transporting wastes in enclosed containers; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment.						^ #
S12.76	***Good Site Practices and Waste Reduction Measures (Con't)*** - Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); - Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; - Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and	achieve waste reduction	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.						^
S12.77	***Good Site Practices and Waste Reduction Measures (Con't)*** - The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.						
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations shall be designated to stockpile each material to enhance reuse	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	-	^ ^ * ^
S12.80	***Storage, Collection and Transportation of Waste (Con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts:	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	-	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed						^ ^ N/A ^ ^ ^
S12.81	***Storage, Collection and Transportation of Waste (Con't)*** - Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	• DEVB TCW No. 6/2010	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S12.83 – 12.86	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach	minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	All works sites	Construction phase	• DEVB TCW No. 6/2010 • ETWB TCW No. 33/2002 • ETWB TCW No. 19/2005	^ ^ ^ ^
S12.88	***Sediments*** The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authorityof issuing marine dumping permit under the Dumping at Sea Ordinance						
S12.89	***Sediments*** The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.	To determine the best handling and disposal option of the sediments	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S12.91-12.94	***Sediments*** - Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the						N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic selfmonitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.						N/A
S12.95	***Sediments*** A possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of thecontainer on the seabed have been addressed.						
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation	register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	All works sites	Construction phase	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	N/A N/A N/A
S12.98	***Chemical Waste Storage Area*** - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only;	prepare appropriate storage areas for chemical waste at works areas	Contractor	All works sites	Construction phase	• Code of Practice on the Packaging, Labelling and	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation; - Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated.					Storage of Chemical Wastes	N/A N/A N/A N/A N/A
S12.99	***Chemical Waste*** - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	・Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^
S12.100	***Collection and Disposal of Chemical Waste*** A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	・Waste Disposal (Chemical Waste) (General) Regulation	N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation						
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	All works sites	Construction phase	-	#
S12.102	***General Refuse (Con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	-	^
S12.103	***General Refuse (Con't)*** The Contractor shall carry out an education programme for	raise workers' awareness on recycling issue	Contractor	All works sites	Construction phase	-	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders						

Remarks:
^ Compliance of mitigation measure
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
N/A Not Applicable

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

Monthly Summary Waste Flow Table for 2015 (year)

Contract No: SCL1121
Date Reported: May 2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m³/tonne)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00451
May	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.00653**
June											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total											

Notes:

(1) The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

Monthly Summary of Marine Sediment Flow for 2015 (year)

Contract No: **SCL1121**
Date Reported: **May 2015**

Month	Volume of Sediments Generated Monthly (m^3) (Bulk Volume)			
	Type 1 – Open Sea Disposal	Type 1 – Open Sea Disposal (Dedicated Site)	Type 2 – Confined Marine Disposal	Type 3 – Special Treatment Disposal
Jan	0.000	0.000	0.000	0.000
Feb	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000
May	**9,535**	**0.000**	**6,583**	**0.000**
June				
July				
Aug				
Sept				
Oct				
Nov				
Dec				
Total	**9,535**	**0.000**	**6,583**	**0.000**

APPENDIX L
CUMULATIVE LOG FOR COMPLAINT LOGS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--